NOTICE OF WORK SESSION
OF THE PLANNING AND ZONING COMMISSION

Chair Dan Kovacevic	
Vice Chair Peter Gray	**Commissioner Mathew Corrigan**
Commissioner Charles McDermott	**Commissioner Nick Proctor**
Commissioner Scott Schlossberg	**Commissioner Phil Sveum**

TIME: **6:00 PM - WORK SESSION**
DOORS OPEN 15 MINUTES PRIOR TO THE START OF THE MEETING
WHEN: **TUESDAY, JULY 28, 2026**
WHERE: **FOUNTAIN HILLS COUNCIL CHAMBERS**
16705 E. AVENUE OF THE FOUNTAINS, FOUNTAIN HILLS, ARIZONA

1. CALL TO ORDER

2. WORK SESSION STATEMENT

All Items Listed Are for Discussion Only. No Action Can or Will Be Taken. The primary purpose of work sessions is to provide the Commission with the opportunity for in-depth discussion and study of specific subjects. Public comment is not provided for on the agenda and may be made only as approved by consensus of the Commission. In appropriate circumstances, a brief presentation may be permitted by a member of the public or another interested party if invited by the Chair or the Director to do so. The Presiding Officer may limit or end the time for such presentations.

3. ROLL CALL

4. REGULAR AGENDA

a.

- **DISCUSSION AND POSSIBLE DIRECTION:** Regarding draft ordinances amending and replacing Town Code Article 16-2, Small Wireless Facilities, and Zoning Ordinance Chapter 17, Wireless Telecommunication Towers and Antennas.

5. ADJOURNMENT

Dated this 15th day of July 2026.

Paula Fisher

Paula Fisher, Executive Assistant

The Town of Fountain Hills endeavors to make all public meetings accessible to persons with disabilities. Please call (480) 816-5100 (voice) or AZRelay 7-1-1 the Thursday prior to the meeting to request reasonable accommodation.

TOWN OF FOUNTAIN HILLS

STAFF REPORT

Meeting Date:	7/28/2026
Meeting Type:	Planning and Zoning Commission Work Session
Submitting Department:	Development Services
Prepared by:	John Wesley, Development Services Director
Staff Contact Information:	Phone: 480-816-5138 Email: jwesley@fountainhillsaz.gov

Request to Town Council Regular Meeting (Agenda Language)

- **DISCUSSION AND POSSIBLE DIRECTION:** Regarding draft ordinances amending and replacing Town Code Article 16-2, Small Wireless Facilities, and Zoning Ordinance Chapter 17, Wireless Telecommunication Towers and Antennas.

Staff Summary (background)

Following a couple of years of community discussion and input, and six months of review and discussion by the Planning and Zoning Commission, on September 4, 2024, the Town Council approved an ordinance updating Chapter 17, Wireless Telecommunications Towers and Antennas. Because that review and update process did not also include any consideration of amending Article 16-2 of the Town Code dealing with small cell facilities located in Town rights-of-way and did not have the benefit of the work done by Andrew Campanelli to draft a revised ordinance, on January 21, 2025, the Town Council directed staff to work with the Planning and Zoning Commission to consider further revisions to Chapter 17 of the Zoning Ordinance and also to review and update the regulations governing small cell facilities in the Town's rights-of-way.

Staff and the Commission began that work at the regular meeting in March 2025. Over the next couple of months, the Commission reviewed the existing zoning ordinance and the draft ordinance provided by Mr. Campanelli for modification of Chapter 17 of the Zoning Ordinance. Following that review, the Commission was ready to begin review of Town Code Article 16-2. Given the legal and technical requirements involved in this section, work was delayed until a decision was made to hire a consultant to help address all the ordinances and issues related to wireless telecommunications.

To help complete this project, with direction from the Town Council, staff entered into a contract with McCollough Law Firm PC to assist staff in the drafting of the updates to the ordinances and associated documents. This firm was selected based on their expertise in this field of law and their responsiveness to working with staff to complete this project in a timely manner.

Over the last several months, the consultant and staff have worked to revise both ordinances to provide the maximum protection for the town while also complying with legal requirements and providing reasonable means to have adequate wireless communication coverage throughout the Town. Attached are six documents for Commission review and discussion at the work session:

- Zoning Ordinance Chapter 17, Wireless Telecommunications Towers and Antennas. This chapter of the zoning ordinance is provided in both a strike through and a clean version. In the strike through version, the current adopted ordinance language is black font; changes that have previously been reviewed, discussed and agreed to by the Commission are in red font; and, changes being recommended by the consultant and staff through our subsequent review are in green font.
- Town Code Article 16-2, Small Cell Facilities. The existing Article 16-2 is very short and limited portions of that article were used in the new ordinance. Therefore, no strike through version of this ordinance is provided. In addition to providing for small cell facilities in the right-of-way, this article now addresses all cell towers classified as small cell facilities.
- Terms and Conditions and Design Guidelines. These documents were adopted previously and help implement the requirements associated with small cell facilities in the right-of-way. No changes have been proposed to these documents. They are being included because they are referenced in Article 16-2.
- A map illustrating the impact of the proposed location requirements in Chapter 17 that will limit the options for where new cell towers can be located.
- A review of the draft ordinances from the consultant.

Staff is still evaluating some of the bond requirements as stated in the ordinance and determining the amount needed for the maintenance bond required in Chapter 17. As staff and the consultant continue to review and ordinances and respond to comments and questions some minor modifications may occur in the ordinance for the public hearing.

This meeting has been scheduled as a work session focused on this one topic. The consultant will be joining remotely to review the ordinances and answer questions from the Commission. It is anticipated that following the work session, staff and the consultant will respond to any comments, questions, and concerns and prepare a final draft of Chapter 17 of the Zoning Ordinance for Commission and public discussion at the Commission's regular meeting on September 8, 2026.

Related Ordinance, Policy or Guiding Principle

Town Code Chapter 16-2
Zoning Ordinance Chapter 17

Risk Analysis

N/A

Recommendation(s) by Board(s) or Commission(s)

N/A

Staff Recommendation(s)

This is a work session discussion item only, no recommendations are being made at this time.

Suggested Motion

N/A

ATTACHMENTS

1. PCZ Wireless Ordinances Memo_fnl
2. Chapter 17 Wireless Towers and Antenna - strikethrough
3. Chapter 17 Wireless Towers and Antenna - clean
4. Article 16-2 Small Cell

5. DOC-361165A1_FCC Drive Test
6. 500' buffer map

McCOLLOUGH LAW FIRM PC

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Memo

Date: July 13, 2026

To: Fountain Hills Planning and Zoning Commission

From: W. Scott McCollough, Esq., Vanessa Shinmoto

Re: Revisions to Article 16-2 and Chapter 17 Wireless Telecommunications Towers and Antennas

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Background

Wireless telecommunications facilities deployment – towers, small cells, rooftop antennas, and pole attachments – can improve communications connectivity and many consider that a benefit. But it also has significant downsides. Unsightly installations harm the visual character of neighborhoods and introduce industrial blight onto scenic vistas and historic places. Nearby homeowners and residents experience degraded property values and quality of life when facilities are placed near homes, schools, and parks. Local authorities must balance competing interests and demands, but this has always been so for contemplated land use authorizations of commercial/industrial infrastructure and wireless telecommunications facilities are no different in this respect.

Federal law currently limits local government regulation of these facilities in several significant ways. Local government regulation must not “effectively prohibit” the provision of personal wireless service or “unreasonably discriminate” against wireless providers. 47 U.S.C. § 332(c)(7)(B)(i). Local governments are precluded from regulating facilities on the basis of health or environmental impacts from radiofrequency (RF) emissions or exposures to RF radiation from facilities. 47 U.S.C. § 332(c)(7)(B)(iv).[1]

[1] There is a distinction between emissions and exposures. 47 U.S.C. § 332(c)(7)(B)(iv) references emissions but the FCC’s safety guidelines reference exposure, specifically human exposures. 47 C.F.R.§1.1310(a). Table 1 to § 1.1310(e)(1) sets forth limits for Maximum Permissible Exposures (MPE) to RF radiation. 47 C.F.R.§1.1310(e)(1). Table 1. For the purposes of monitoring the compliance of towers

Arizona state law sets further restrictions with respect to small wireless facilities (SWFs) in the public rights-of-way.

The Town of Fountain Hills (Town) desires to retain and exercise its authority over these facilities as much as is possible under federal and Arizona law. The principle is simple: these decisions are best made at the local level since local representatives are in the best position to effectively balance costs and benefits. The Town has been working to update its wireless ordinances to reflect this priority and promote responsible and appropriate deployments of cell towers and small cells. The Town seeks to amend two ordinances that address placement and regulation of wireless telecommunications facilities:[2]

1. Article 16-2 Small Wireless Facilities (SWFs) in Chapter 16 of the Town Code
2. Chapter 17 Wireless Telecommunications Towers and Antennas in the Zoning Ordinance

The proposed updates to both ordinances make use of the room left in both federal and Arizona law to enforce higher standards for the permitting of towers and other wireless facilities as follows:

- Explicitly reaffirm the Town's general authority in land-use decisions and over its public rights-of-way when considering permit applications for wireless facilities, thereby asserting local oversight that rightly belongs to the Town in these types of decisions. Various federal and state statutory provisions express this general authority including:
    - 47 U.S.C. § 332(c)(7)(A) preserving local zoning authority[3]
    - Ariz. Rev. Stat. § 9-462.01.A.1 granting the Town zoning authority[4]

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and SWFs with the FCC's RF safety limits, this document and both ordinances will reference exposures, not emissions.

[2] For ease of reference, the wireless telecommunications facilities addressed in both ordinances shall be called wireless facilities or facilities throughout this document.

[3] "…except 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 services facilities." 47 U.S.C. § 332(c)(7)(A).

[4] *See Bartolomeo v. Paradise Valley*, 129 Ariz. 409, 631 P.2d 564, 1981 Ariz. App. LEXIS 471 (Ariz. Ct. App. 1981) (statute granting zoning authority is permissive and indicates legislative intent to grant towns discretion under police powers).

    - Ariz. Rev. Stat. §§ 9-583.A, and 9-596.A preserving the Town's authority to manage its public rights-of-way

- Ensure the responsible siting of facilities that aligns with Fountain Hill's unique desert and historic identity and protect landmarks and natural resources such as Fountain Park, McDowell Mountain Preserve, Pleasantville Park, Saguaro cacti[5] and the Town's cherished desert mountain views.
- Enhance transparency and accountability by strengthening application requirements and review procedures, allowing the Town to:
    - Request documentation of compliance with federal and Arizona statutory criteria governing the type, size, height and dimensions of proposed facilities that are exempt from discretionary zoning decisions[6]
    - Seek waivers from federal and Arizona's "shot clock" time limits to review applications for completeness and issue final decisions on applications
    - Conduct thorough evaluations of aesthetics, land use compatibility, and environmental context for both applications on private property and in the public rights-of-way

These updates ensure the Town remains within the limits of both the federal and state preemption while preserving the Town's authority to review permit applications in a manner that provides the Town with a full record on which it can base and, if necessary, defend its decision to deny or grant a permit with or without conditions.

Article 16-2 Small Wireless Facilities

Background

Article 16-2 in its current form codifies Ordinance 18-01, passed as an urgency ordinance in response to the Arizona legislature's passage of HB 2365 to streamline the deployment of SWFs in the rights of ways. This ordinance added Article 16-2 to Chapter

[5] Chapter 20 of the Town Zoning Code is dedicated entirely towards protecting this important natural resource. Thus, the purpose of protecting Saguaro cacti is expressly stated in both ordinances.
[6] For instance, eligible facilities requests automatically exempt certain types of modifications and collocations for towers that have already been built. 47 U.S.C. § 1455(a)(1). These are discussed in more detail below.

16 “Streets and Sidewalks”[7] to govern proposals for the construction and installation of SWFs and associated monopoles, utility poles, and other equipment such as antennas, conduit radios, cables, cabinets, and inverters.

HB 2365 eliminated much of the Town’s discretionary authority over the permitting of SWFs in the public rights-of-way. The legislation exempts collocations of SWFs located in the public rights-of-way from zoning review and mandates the Town’s approval of permit applications for these facilities.

Nonetheless, this legislation still recognizes the Town’s authority to exercise its police powers over its public rights-of-way and allows the Town to require permits for these facilities. *See* A.R.S. § 9-593.D. (allowing the Town to require permits to collocate SWFs as long as the permits are of general applicability and do not apply exclusively to SWFs.) and A.R.S. § 9-594.A. (subjecting certain activities to all the Town’s codes and regulations unless the activities are exempted from zoning review under A.R.S. § 9-952.I. or A.R.S. § 9-953.C.) Thus, the Town can deny proposed facilities due to public safety or aesthetic considerations.[8]

Overview of Revisions

Substantive changes were made to Article 16-2 with major additions to existing Section 16-2-2 Definitions, restructuring all provisions in former Section 16-2-3 pertaining to SWFs in the right-of-way, and adding six new sections to this article. The new sections contain important provisions covering design standards, locational requirements, application submission and review procedures, permit conditions, safety standards, operational requirements, and appeals.

[7] The codification of Ord. 18-01 in Chapter 16 “Streets and Sidewalks” represents well-established precedent of the use of the public rights-of-way for the placement of utilities that serve the “health and convenience of the city.” *City of Chandler v. Ariz. DOT*, 224 Ariz. 400, 405 (2010) (quoting *Denver Circle R. Co. v. Nestor*, 10 Colo. 403, 15 P. 714, 722 (Colo. 1887)). As such, Art. 16-2 is not a zoning ordinance and thereby outside the review authority purview of Planning and Zoning Commission even though the permitting of these facilities has a “physical effect on a property.” *See Novak v. Town of Fountain Hills*, 2020 Ariz. App. Unpub. LEXIS 192 *; 2020 WL 777508.

[8] HB 2365’s amendments restrict the Town to implementing “objective design standards and reasonable stealth and concealment requirements.” However, the proposed revisions to Section 16-2 codify these requirements and provide the Town with criteria that forms the basis of the “substantive evidence” federal law requires to justify permit denials.

Policy and Purpose: Section 16-2-1

Revisions delete the Town Code's original text, replacing it with specific, enumerated purposes to implement a policy of offering greater protection to the public, residents, property owners, historic areas, natural resources, and the Town's overall aesthetic and visual character.

The revisions strengthen existing protections allowable under federal and state law in several key areas:

1. Adds language expressly reserving local authority under federal and state law.
2. Emphasizes preservation of Fountain Hill's desert beauty, natural resources, historic character, and community values.
3. States the intent of the ordinance to regulate small wireless facilities in a manner that fully complies with FCC prohibitions in the following areas:
    a. "Effectively prohibiting" any wireless carrier's ability to provide reasonable and necessary wireless communications services (for voice calls);
    b. "Effectively prohibiting" any wireless carrier's ability to provide reasonable and necessary interstate or intrastate telecommunications service;[9]
    c. Unreasonably discriminating among providers of functionally equivalent services;
    d. Denying any request for authorization to place, construct, or modify small wireless facilities on the basis of health and environmental impacts of radio frequency emissions as long as the facilities comply with all FCC regulations concerning such emissions; or
    e. Denying requests that meet the FCC's criteria for "eligible facilities requests."

[9] It should be noted that A.R.S. § 9-591.24's definition of wireless provider includes cable operators and video service providers that operate cable television system in the public streets. *See* A.R.S. § 9-505.2. However, cable operators and video service providers are not entitled to make a claim of "effective prohibition" pursuant to 47 U.S.C. § 332(c). Nor are they entitled to the similar provision in 47 U.S.C. § 253, except to the extent they claim to provide telecommunications on a common carrier basis ("telecommunications service") and most cable and video providers do not. To the extent these two federal statutes do apply they contain safe harbors allowing for local protection of public safety and welfare and managing the public right-of-way.

Application Submission Requirements and Review Processes - New Sections 16-2-5 and 6

The application requirements and application review processes in new Sections 16-2-5 and 16-2-6 ensure the Town receives all the relevant information needed for thorough review of proposed SWFs and provides adequate timeframes for this review to take place. These new application requirements and review processes are consistent with federal and state law granting general authority to the Town to regulate its streets and sidewalks. Provisions of note include:

- Comprehensive documentation requirements to ensure proposed facilities meet federal and state statutory criteria for bypassing zoning review and enable the Town to assess the extent of potential impacts on nearby properties, viewsheds, visual character and aesthetics, including:
    - Drawn-to-scale depictions that include complete calculations for all the antennas and equipment to ensure SWFs meet the size and other criteria for bypassing zoning review. 16-2-5 B.4.
    - Site surveys, construction drawing, and photo simulations that depict a more accurate visual picture of how proposed facility will appear as constructed and completed. 16-2-5 B.5. – B.7.
    - Environmental impact assessments, acoustic analysis, and structural elevations that include nearby trees and other structures for facilities exceeding 30 feet in height, for a clearer picture of the impacts on landscape and nearby homes and businesses. 16-2-5 B.10., B.12., and B.14.
- Authorizes requests for waivers from statutory shot clocks to ensure full and fair review and deletes unnecessary “deemed granted” provisions that inadvertently weaken the Town’s authority to properly review permit applications.16-2-6 E.
- Implements a completeness review process consistent with Arizona shot clock timeframes for this preliminary review stage. The completeness review period allows the Town to ensure it has received all mandatory documentation and materials before commencing a full review. 16-2-6 F.
- Includes mandatory environmental and historical reviews when required under federal and Arizona laws.

Permit Conditions and Safety Standards - New Sections 16-2-7, 8 and 9

Permit conditions clarify the obligations and responsibilities of permittees after approval These new provisions ensure compliance with design standards, requiring replacement of damaged landscape features, and requiring permittee to assume full liability for damage or injury to people and property.

Some notable additions include:

1. Adds provisions requiring permittee to obtain specific types of insurance coverage with minimum coverage amounts that name the Town as an additional insured. 16-2-7 C.
2. Requires permittee to submit a facility maintenance/removal agreement that includes a cash bond to cover the costs of removing the facility once it is deemed abandoned. 16-2-7 G.3.
3. A requirement for permittee to provide a toll-free telephone number staffed by a live person with power-down control over the facility who is available 24 hours a day, seven days a week in case of emergency. 16-2-7 L.4.
4. Recognition and compliance with ADA requirements, specifically reasonable accommodation. 16-2-7 F.
5. A decommissioning plan that sets out plans for disposal of solid waste, a schedule addressing the restoration of disturbed vegetation to minimize erosion and estimated costs for decommissioning and itemization of estimated major expenses. 16-2-7 H.
6. A provision for permit revocation when “there is information that the facility may not be in compliance with all applicable codes…” 16-2-7 N.

RF Compliance – 16-2-9 A

Arizona law expressly allows the Town to require certification of the facility’s compliance with FCC RF exposure guidelines. A.R.S. § 9-593.G.2. The statute’s silence on the specificity and frequency of RF compliance certification provides the Town the opportunity to implement strict requirements and procedures to ensure its residents and the general public are not exposed to RF levels that exceed FCC limits.

New Section 16-2-9 implements strict requirements and procedures to help ensure active facilities remain within FCC’s exposure limits. Subsection A expressly states the

Town's policy in this regard, with Paragraph 1 emphasizing a prohibition on illegally excessive RF radiation resulting from facility sites or manner of operation. The text extends this prohibition to account for cumulative emissions in combination with other facilities.

Paragraph 2 implements a comprehensive RF monitoring regime that aligns with Town policy. This regime begins with a tiered schedule for RF emissions monitoring consisting of post-installation certification, post modification certification, and annual certification. Other key provisions include:

1. Providing for random, unannounced testing of facilities at the permittee's expense to incentivize safe operation at all times whenever possible. 16-2-9 A.2.(d).
2. Providing for good cause testing when the Town has reason to believe a facility is exceeding FCC exposure limits. 16-2-9 A.2.(e).
3. Providing for permit revocation or recission for findings of illegally excessive RF radiation. 16-2-9 A.3.

Adopting these provisions also provides another basis for fulfilling the substantial evidence requirements in the event litigation arises due to any permit revocations that arise from illegally excessive RF emissions. Courts have ruled in favor of local governments that have comprehensive ordinances with clear requirements.[10]

Regular Maintenance

This section also includes maintenance requirements to keep the facilities in good condition and thus further minimize visual, noise, and other adverse impacts to nearby properties. Repairs, which are mandated, must take place within 48 hours after the permittee receives notice of the need for repair. Section 16-2-9.C. One important provision expressly mandates permittees to act upon direct notification from Town residents of the need to repair facilities.

Permit Conditions – New Section 16-2-7

Permit conditions clarify the obligations and responsibilities of permittees after approval of a permit application and completion of construction to promote the safe operation of facilities. New Section 16-2-7 adds 14 provisions that ensure compliance with design

[10] *See Verizon Wireless v. Borough of Pleasant Hill* No. 945 C.D. 2025 (affirming the trial court's upholding of the Borough's denial of a site plan due to Verizon's failure to comply with its local ordinance).

standards, require replacement of damaged landscape features, and requiring permittee to assume full liability for damage or injury to people and property.

Some notable additions include:

1. Adds provisions requiring permittee to obtain specific types of insurance coverage with minimum coverage amounts that name the Town as an additional insured. 16-2-7 C.
2. Requires permittee to submit a facility maintenance/removal agreement that includes a cash bond to cover the costs of removing the facility once it is deemed abandoned. 16-2-7 G.3.
3. A requirement for permittee to provide a toll-free telephone number staffed by a live person with power-down control over the facility who is available 24 hours a day, seven days a week in case of emergency. 16-2-7 L.4.
4. Recognition and compliance with ADA requirements, specifically reasonable accommodation. 16-2-7 F.
5. A decommissioning plan that sets out plans for disposal of solid waste, a schedule addressing the restoration of disturbed vegetation to minimize erosion and estimated costs for decommissioning and itemization of estimated major expenses. 16-2-7 H.
6. A provision for permit revocation when “there is information that the facility may not be in compliance with all applicable codes…” 16-2-7 N.

Chapter 17 Wireless Telecommunications Towers and Antennas

The revisions to Chapter 17 of the Town’s Zoning Ordinance represent the culmination of a years-long effort to protect the Town’s scenic desert character and address public concerns over these siting of these facilities in a manner that complies with federal and Arizona law. https://www.fountainhillsaz.gov/CivicAlerts.aspx?AID=584&ARC=895 While federal and state law are less restrictive on the Town’s authority over these larger facilities, the Town must remain cognizant of still-evolving federal laws that favor

efficient deployments over local authority, transparency, property rights, and aesthetic values.[11]

Summary of Changes

Most of the changes to the macro tower ordinance manifest as additions to the existing language and new provisions. Nearly all seven sections of the ordinance were revised and a new section, Section 17.08, authorizing the Town to retain consultants at applicant's and/or property owner's expense was added. The amendments strengthen the Town's legislative findings, clarify terminology, expand application requirements and technical standards, preserve the Town's land use authority to the fullest extent permitted by law, and expressly acknowledge the federal and state limitations that govern local regulation of wireless facilities. These changes include:

- Substantially expanding the purpose section to protect the Town's community values, minimize unnecessary proliferation of towers through collocation, and balance the provisions of reliable wireless service with the interests of property owners
- Adding and revising definitions to clarify essential terms and technical terms to prevent overly broad interpretations and enhance protections such as "adequate coverage," "base stations," "illegally excessive RF radiation or illegally excessive radiation," and "necessary, necessity, or need"
- Adding extensive requirements of documentation including objective engineering and technical reports, evidence of regulatory authorizations, visual impacts analysis, and site restoration plans
- Clarifying applicants' obligations to adequately and timely respond to notices of incomplete applications and language regarding the shot clocks that apply to different types of applications

[11] Both Congress and the FCC are considering proposals to further preempt local authority in the name of streamlining wireless deployments. *See e.g.* H.R. 2289 The American Broadband Deployment Act of 2025 (exempting more types of wireless facilities from discretionary zoning), FCC Build America: Eliminating Barriers to Wireless Deployments Docket 25-276 (expediting review of permit applications to "streamline" deployment).

- Detailed siting standards, safety standards, expanded setbacks for residential properties, evaluation of compatibility with surrounding areas, and noise mitigation
- Expanded protections and oversight of RF emissions to prevent illegally excessive exposures that violate FCC standards, including random and good cause testing of facilities
- Bond requirements to ensure removal of abandoned towers
- Authorization to retain independent consultants at applicant's expense

These changes will allow proper review of permit applications for large towers and other facilities that impact residential properties and the Town's appearance and ensure applicants abide by their obligations to propose safe, well-maintained facilities in appropriate locations.

Policy and Purpose - Section 17.01

The Town's original text provided a good start in its enumeration of purposes, expressly referencing the General Plan and environmentally sensitive areas as considerations, and clarifying the ordinance's applicability. For instance, current Subsection A clarifies the Town's expectations for applicants with express stated purposes of protecting residential areas, limiting the number of towers to those necessary for adequate service, and requiring tower owners and operators to design towers to minimize the adverse visual impacts.

However, this section lacked express language preserving the Town's authority under both federal and state law and protecting the Town's unique natural and cultural resources. Revisions strengthen protections with the addition of express language recognizing these purposes and specifying the Town's intent to protect unique resources such as Saguaro cacti and its status as an International Dark Sky Community.[12] Other revisions of note include:

[12] A designated International Dark Sky Community "support[s] protection of human health, nocturnal habitats, public enjoyment of the night sky and its heritage, and/or areas ideal for professional and amateur astronomy" International Dark Sky Communities Program Guide at 3 (June 2018) (last accessed July 9, 2026). The appropriate siting of large towers is critical to ensure these do not block views of constellations and the Milky Way.

1. Express references to federal and state statutes recognizing the Town's general authority over zoning, land-use, exercise of police powers, and managing access to its rights-of-way pursuant to 47 U.S.C. § 332(c)(7)(A), A.R.S. §§ 9-462.01, and 9-596.A.
2. Replacing existing language with stronger language such as "encouraging" with "promoting" or "requiring" and "minimizing" with "limiting."
3. Expressly stating the Town's intent to comply with all substantive and procedural requirements for permit applications in 47 U.S.C. § 332(c)(7)(B).
4. Expressly stating the Town's intent to comply with FCC legislative rules including those for RF exposure and addressing state and local government regulation of towers and other wireless facilities.
5. States the intent of the ordinance to regulate small wireless facilities in a manner that fully complies with FCC prohibitions in the following areas:
    a. "Effectively prohibiting" any wireless carrier's ability to provide reasonable and necessary wireless communications services (for voice calls);
    b. "Effectively prohibiting" any wireless carrier's ability to provide reasonable and necessary interstate or intrastate telecommunications service;
    c. Unreasonably discriminating among providers of functionally equivalent services;
    d. Denying any request for authorization to place, construct, or modify small wireless facilities on the basis of health and environmental impacts of radio frequency emissions as long as the facilities comply with all FCC regulations concerning such emissions; or
    e. Denying requests that meet the FCC's criteria for "eligible facilities requests."
6. Adding a provision applying the ordinance to existing towers that are upgraded or modified in any manner to be subject to maintenance and operations requirements that include RF compliance.

Definitions and Protective Terms - Section 17.02

Introductory language regarding construction of terms, such as expressly stating the mandatory nature of “shall,” and the controlling nature of the definitions in this section over any other definitions in the Town Code and Zoning Ordinance clarify potential ambiguities arising over interpretations of the definitions. Numerous definitions have been added to this section to reflect protective terms and make definitions consistent with federal and state law to clarify the meaning. Other definitions have been revised to enhance protections for the Town and its residents.

New Definitions

The added definitions are consistent with the definitions in federal and state statutes and emphasize existing federal and state protections in the following areas:

- Environment, historic and cultural resources
- Safety guidelines for exposure to RF emissions
- Criteria governing restrictions on size, height and dimensions of wireless facilities eligible for administrative permitting
- Aesthetic and visual impacts

Other added definitions clarify terms related to permitting processes, including both the federal and Arizona “shot clocks” that mandate timeframes for local review of applications for completeness purposes and decisions to either grant or deny a permit application. New definitions for technical terms, such as dBm for decibel milliwatts and distributed antenna system provide guidance for evaluating the technical components in design plans, as-built drawings, and engineering certifications required by the proposed revisions of the ordinance. Important new terms of note include the following definitions:

1. Definitions for federal and state agencies such as FAA, FCC, and the Arizona Department of Environmental Quality that oversee important federal and state regulations on airline safety, wireless providers, and the environment.
2. Expanded language for definitions of “adequate coverage” and “effective prohibition” that require in-depth explanations pursuant to federal and Ninth Circuit case law regarding the meaning of and application of terms. This expanded language is critical for clarifying the reading and interpretation of these terms for all stakeholders: Applicants, Town Council and staff, federal and state agencies, residents, consumers, and the general public.

3. Definitions clarifying “small wireless facility,” collocation,” and “right-of-way,” and providing context for differences in definitions between federal and state law to safeguard against over-broad interpretations by wireless providers.
4. Definitions for terms relevant to protecting aesthetics such as “alternative wireless facility structure,” “historic building,” and “residential dwelling” to prioritize important regulations that maintain the Town’s orderly and scenic visual appearance.
5. Definitions related to application submission and review procedures that clarify both the applicants’ and the Town’s obligations throughout this process. These include “complete application, completed application,” “eleventh hour submission,” “notice of incompleteness, notice of incomplete application,” and “toll or “tolled.”

Modified Definitions

The revisions also modify a few existing definitions to ensure consistency with federal and state law and foreclose overly broad interpretations that potentially create ambiguity and confusion. For instance, the current definition of “height” allows issues due to terrain to bypass accurate measurements of height and substituting an individual Zoning Administrator’s ruling on the height. The revised definition eliminates this language, thus ensuring that height measurements remain accurate.

Two other modified definitions are:

1. “Antenna” – the existing definition is revised to reference RF emissions and specify the antenna’s use for personal wireless services pursuant to FCC authorization and licensing. The definition also expressly excludes antennas designed for amateur radio and satellite use for hobby or household purposes as not applicable.
2. “Tower” – revisions reorder the language to begin with specifying common types of towers, e.g. lattice, monopole, masts, and adds language to specify the types of masts that will be considered towers under the ordinance.

Requirements – Section 17.03

Much like Section 17.01's Purpose, existing provisions in this section provided a notable degree of protection as compared to most ordinances and codes.[13] These provisions address important considerations of aesthetics, lighting, measurement, signs, colocations and noise. This Section already makes the Town's priority in preserving its scenic beauty clear with specific provisions addressing aesthetic issues: screening, neutral paint color for facilities and equipment, landscaping, placement to minimize visual impact, emphasizing designs that reduce the harm to nearby properties to the extent possible, and accessory structures.

The most notable revision in this section is the expansion of separation, or setback, requirements for towers and other facilities to 500 feet in residential areas. This revision directly addresses residents' concerns about towers being too close to homes while balancing the need for reliable wireless voice services.[14]

Another revision adds a requirement for all accessory equipment to be located below grade in a vault unless the Town Council approves above-grade equipment. Above grade equipment must meet already existing standards regarding the use of building materials, colors, and textures that blend in with the surrounding area and structures that are architecturally similar and compatible with each other. Section 17.03 A.3.e.

Other revisions are:

- Added text to lighting requirements emphasizing compliance with the Town's Zoning Code. Section 17.03 A.4.
- Added a new provision addressing access and parking with language emphasizing compliance with the Town's Zoning Code. Section 17.03 A.14.

[13] For instance, the only protection Navajo County's wireless ordinance provides to nearby residents impacted by a proposal for a macro tower is a requirement for applicants to meet with community groups and residents within 300 feet of the site "to solicit suggestions from these groups about the applicant's proposal and impact mitigation measures" and "make a concerted effort to incorporate the community suggestions for impact mitigation…" Navajo County Zoning Ordinance Section 1306 1.d.
[14] The recommended distance for optimal protection is 1640 feet from cell towers. The State of New Hampshire's "Final Report of the Commission to Study the Environmental and Health Effects of Evolving 5G Technology," Appendix K at 100 (2020). The Town's geographic size, however, makes this distance too prohibitive.

Application Types – Section 17.04

Current language in this section divides applications into two types: applications subject to administrative review and those requiring public review. Subsection A enumerates seven types of applications that are not currently subject to public review.[15]

The only update to this section is the deletion of Paragraph 7 that currently allows administrative permitting of new towers on Town property, commercial, utility or industrial zones, and proposals for alternative tower structures that blend in with the surrounding area and are at least 300 feet from residential zones. Making proposals for all new towers subject to public review promotes greater transparency and public participation in the permitting process for facilities that have a high potential for adverse visual and other impacts on nearby properties.

Application Submittal, Review, and Processing – Section 17.05

The current language in this section lacked application submittal requirements for essential information regarding potential visual impacts, safety compliance, environmental assessments, liability, and the removal of towers. While Subsection B contains provisions addressing shot clock issues and providing for tolling, Subsection C lacked specific requirements for review of potential adverse impacts to property values, compatibility with uses and character of nearby properties, and any mitigation efforts applicants have made to reduce these impacts.

Revisions overhaul this section with comprehensive documentation requirements for application submittals and implement review and processing procedures that clarify completeness review and substantive review time frames. The documentation requirements for applications address safety compliance, visual impacts, environmental assessment, liability, and most importantly, need for the tower.[16] These new procedures

[15] Two of these application types involve eligible facilities requests which exempt certain types of modification or collocations from public review requirements provided these modifications do not "substantially change the physical dimensions of such facilities." 47 U.S.C § 1455(a).

[16] The need for the tower to achieve applicant's coverage objectives is critical to support claims of effective prohibition in the event of a permit denial. The provider must submit evidence that it has a "significant gap in coverage." *L.A. SMSA Ltd. P'ship v. City of L.A.*, No. LA CV16-04954-JAK (SKx), 2020 U.S. Dist. LEXIS 269304. Then it must show that it considered alternatives and explain why those alternatives are not technically feasible. *GTE Mobilnet of Cal. Ltd. P'ship v. City of Berkeley*, No. 20-cv-05460-DMR, 2023 U.S. Dist. LEXIS 52004, at *77 (N.D. Cal. Mar. 27, 2023), *citing Los Angeles SMSA Ltd. P'ship v. City of Los Angeles, California, et al.*, No. LA CV16-04954-JAK (SKx), 2020 WL 13662046, at *22 (C.D. Cal. Sept. 1, 2020) and *T-Mobile USA Inc. v. City of Anacortes*, 572 F.3d 987, 996-99 (9th Cir.

enhance the Town's ability to comply with federal and state shot clock requirements while allowing for proper review of applications.

Updated Application Submittal Requirements – Subsection A

Revisions overhaul this section with comprehensive documentation requirements for application submittals, transforming Subsection A from a relatively limited permit application process into a comprehensive evidentiary review framework. Requirements for objective engineering, operational, technical, and photographic information provide enough information for the Town to independently evaluate whether a proposed facility:

- complies with federal and Arizona law;
- satisfies the Town's zoning and design standards;
- minimizes impacts through collocation or less intrusive alternatives;
- can be safely constructed and eventually removed; and
- is compatible with the surrounding area.

These requirements will yield a complete administrative record capable of providing the written substantial evidence required to support any permit denials. *See* 47 U.S.C. § 332(c)(7) *See also* A.R.S. § 9-462.01.F.[17] Without this objective evidence, courts are likely to favor the representations wireless applicants make to support the proposed facility.

The detailed documentation requirements for all tower applications fall into two categories: basic information and review information.

1. Basic information addresses threshold requirements that applicants must meet to merit governmental approval to install and operate towers. While items such as contact information and regulatory authorizations appear self-evident, explicitly requiring these items ensures Town staff can easily identify and locate applicants when necessary. Other provisions provide front-end assurance that forecloses

2009). Even then, however, the Town can deny the application if it finds the proposal would unduly disrupt the character of the surrounding neighborhood. *City of Portland v. United States*, 969 F.3d 1020, 1042 (9th Cir. 2020). As discussed in more detail below, the requirement for applicants to submit a written statement of their intention to claim effective prohibition includes the submission of objective, technical evidence of dropped calls and results of drive tests for the particular carrier proposing the tower.

[17] All zoning ordinances must be consistent with the Town's General Plan, which expressly "seeks to maintain the Town's dark skies." Fountain Hills General Plan 2020 Briefs at 7 (last accessed July 9, 2026)

potential problems from arising and creating legal disadvantages for the Town when federal and Arizona shot clocks are ticking:

i. Proof that applicant is authorized to enter real property and/or occupy a structure.[18] 17.05 A.6.

ii. Submission of an environmental assessment to determine whether the proposed facility will require further review on potential impacts on migratory birds, endangered species, wildlife, and sensitive habitats. 17.05 A.13.

2. Review information that is comprehensive enough to allow a complete review of application to determine whether proposed facilities meet basic safety requirements and assess the extent of potential impacts on nearby properties, viewsheds, visual character and aesthetics.

i. Fire safety information. New applications must include a Fire Safety Plan addressing emergency response considerations, allowing the Town and emergency responders to evaluate fire hazards, access, and operational issues before approval. This expands the review beyond traditional zoning considerations to include public safety planning. 17.05 A.7.

ii. Engineer's report certifying the structural integrity and safety of proposed new towers and certifying that shared use for proposed co-locations of new equipment will not diminish the structural integrity of the existing structure. 17.05 A.9.

iii. A comprehensive visual impact analysis that includes a "zone of visibility map" to determine locations where the new tower will be seen, photo simulations that depict a more accurate visual picture of how proposed facility will appear as constructed and completed, and a balloon test for proposed towers over 100 feet. 17.05 A.10 and 11.

The revisions also require documentation establishing the applicant's legal authority to occupy the proposed site, including leases or collocation agreements (with only financial

[18] Structure has a specific meaning in the context of wireless permitting. "Structure means a pole, tower, base station, or other building, whether or not it has an existing facility, that is used or to be used for the provision of personal wireless service (whether on its own or comingled with other types of services.) 47 CF 1.6002(m).

terms permitted to be redacted). These provisions eliminate uncertainty regarding who is legally responsible for the facility and who has authority to pursue the application.

Demonstrating the Need for the Proposed Facility (Effective Prohibition)

The “Notice of Effective Prohibition Conditions” provisions are one of the most significant additions to Chapter 17 because they shift the burden from the Town having to disprove an applicant's assertions to requiring the applicant to substantiate, at the outset of the application process, any claim that federal law would prohibit denial of the application.

Under current practice nationwide, wireless applicants frequently argue that denial of an application would constitute an "effective prohibition" under 47 U.S.C. § 332(c)(7)(B)(i)(II). They often make this claim using unverified propagation maps and generalized engineering opinions. The revisions recognize this reality and establish a formal evidentiary procedure whenever such a claim is made.

1. Requires Early Disclosure of Federal Preemption Claims

Early disclosures of federal preemption claims preclude applicants from raising effective prohibition claims late in the review process when a shot-clock deadline is about to expire or for the first time when litigation over a denial commences. An applicant’s submission of "Notice of Effective Prohibition Conditions" allows the Town to begin evaluating this claim during the permitting process and requires applicants to provide proof in support of this claim.

2. Converts Legal Conclusions into Questions of Evidence

The ordinance recognizes that whether denial would constitute an effective prohibition is ultimately a factual determination supported by evidence—not simply a legal conclusion asserted by an applicant.

Once the Notice is filed, the applicant must submit sufficient probative evidence enabling the Town Council to determine:

- whether the alleged conditions actually exist;
- whether a significant service gap exists;
- where the gap is located;
- the precise geographic boundaries of the gap; and

- whether federal law actually requires approval despite the Town's zoning regulations.

This converts an abstract legal claim into an evidentiary question capable of objective review.

3. Requires Actual Drive-Test Evidence

An applicant’s propagation map showing a coverage gap that only the proposed tower can remedy can be convincing. However, propagation maps alone are insufficient to establish a significant gap.[19]

The revisions specifically reference the FCC's “Mobility Fund Phase II Coverage Maps Investigation Staff Report validation” effort, during which FCC staff conducted approximately 24,649 drive tests over nearly 10,000 miles, together with thousands of stationary tests. The FCC found that wireless carriers' submitted propagation maps exhibited accuracy rates ranging from approximately 16.2% to 64.3% and recommended that propagation maps no longer be accepted without supporting drive-test data. The ordinance incorporates this finding and makes the FCC report an appendix to the chapter.

Accordingly, applicants cannot rely solely upon predictive computer modeling when asserting effective prohibition and must perform a drive test in the geographical area of the claimed gap. The ordinance requires submission of:

- the actual raw drive-test data;
- the date and time of testing;
- GPS coordinates for every measurement point;
- the measured signal strength (dBm) at every point;
- separate datasets for every frequency band; and
- maps showing the measured—not predicted—signal strengths.

This allows the Town, its consultants, and ultimately a reviewing court to independently verify the applicant's conclusions.

[19] The updated language in Subsection A.16 Effective Prohibition Claims specifically references the FCC’s 2019 Broadband Data Task Force Report.

4. Allowing Review of Alternative Sites and Collocation

Applicants must submit inventories of existing facilities within the Town and surrounding area together with build-out plans and collocation information. These materials allow the Town to determine whether:

- existing towers can accommodate additional equipment;
- less intrusive sites exist;
- additional towers are actually necessary.

This information supports the Town's obligation to evaluate whether a proposed facility represents the least intrusive feasible alternative while promoting collocation, a policy favored under both federal and Arizona law.

Application Review and Processing

The additional application requirements work to establish a complete application and provide a documentation checklist for Town staff to reference when the application is first reviewed for completeness. An application is not considered complete until it contains all records, reports, engineering analyses, visual impact analyses and supporting evidence required in this Subsection. If any of these materials are missing, the application remains incomplete until these materials and information are provided. This prevents applicants from forcing decisions on incomplete records through the expiration of shot clocks.

The current text in Subsection B already recognizes the importance of complying with shot clock requirements and clarifies that notices of incompleteness automatically toll the shot clock. The addition of express language giving applicants the opportunity to cure the incomplete application and provide the required materials and information within 30 days before the application is deemed withdrawn or closed also prevents applicants from leveraging shot clocks requirements to force premature decisions on permit applications.

This approach is consistent with the FCC's shot clock regulations, which recognize that local governments may require reasonable information necessary to determine whether an application complies with applicable regulations. *See* 47 C.F.R. §§ 1.6003 and 1.6100.

Maintenance and Operation – Section 17.06

The revisions in this section substantially expand the Town's authority to oversee wireless facilities after construction and throughout the life of the facility. Rather than regulating only the initial permitting process, the amendments establish continuing obligations for owners and operators regarding maintenance, inspections, regulatory compliance, abandonment, financial security, and eventual decommissioning. These provisions are intended to ensure that approved facilities remain safe, code-compliant, visually compatible, and financially accountable for as long as they remain in operation.

Compliance with FCC RF safety standards

The most notable revision is the addition of a new Paragraph 2, “Prohibition on illegally excessive emissions and RF testing” that incorporates existing provisions requiring initial certification of RF compliance, random unannounced RF testing, and penalties for noncompliance that include fines and permit revocation.

Newly added language to this paragraph recognizes that the FCC does not routinely verify compliance by independently measuring RF emissions at wireless facilities or requiring routine field testing of every facility. Rather, FCC rules for applicants seeking authorization for RF sources must conduct an evaluation of human exposure to RF radiation and include in the application a statement confirming compliance with the FCC standards. 47 CFR 1.1307(b)(1)(B).[20] The FCC has confirmed that local zoning authorities can enforce the FCC emission/exposure rules during the permit application process and thereafter. *In re Human Exposure to Radiofrequency Electromagnetic Fields et al.,* 34 FCC Rcd 11687, 11739, 2019 FCC LEXIS 3622, *174 (2019).

This paragraph implements additional safeguards to protect residents and the public, including:

- Good cause public hearing for tower operators believed to be exceeding FCC RF limits who fail to supply any RF reports that the Town requests or fail to correct

[20] The FCC mostly relies on self-certification of compliance with RF exposure limits. “Generally, application forms for licenses and grants of equipment authorization for RF transmitters contain a set of certifications where the applicant attests to a set of facts. The application forms typically require an applicant to certify compliance with the exposure limits. **In many cases, this certification is the only routine requirement to demonstrate compliance with the exposure limits.**” Small Entity Compliance Guide: Human Exposure to Radiofrequency Electromagnetic Fields,” FCC 19-126 at 7 (Dec. 2019). (emphasis added).

violations of FCC exposure guidelines with potential permit revocation after a public hearing.

- Penalties for violations including fines and permit revocation.
- Annual testing of RF emissions by a licensed RF engineer.

Other notable maintenance and operation provisions

These provisions work to reduce the unsightly impacts and mitigate the risks of property damage and physical injury resulting from structural failures of towers once they are constructed and operational. Requirements for ongoing routine maintenance of the entire site help ensure owners and operators keep the facilities in good condition. The addition of a bond requirement incentivizes applicants to plan ahead for the removal should it cease operation and places the responsibility of removal costs where they belong: on applicants, not the Town and its taxpayers.

1. Strengthened Abandonment Standards

The ordinance significantly expands the existing abandonment provisions. A wireless facility that ceases operation for 90 consecutive days is deemed abandoned unless an exception applies. Once the Town provides notice, the owner must remove not only the tower or antenna but all associated equipment and improvements, restore the property to a lawful condition, and comply with all applicable codes. If the owner fails to do so, the Town may remove the facility and restore the site at the owner's expense. The amendments also clarify that facilities shared by multiple carriers are not considered abandoned until all users have discontinued service.

2. Bond to Ensure Removal of Abandoned Facilities

A major addition is the requirement that applicants provide financial assurance before construction begins to guarantee the eventual removal of abandoned facilities. Rather than leaving taxpayers responsible for dismantling obsolete infrastructure, the ordinance requires applicants to post security sufficient to cover decommissioning and site restoration costs. This financial guarantee works together with the required decommissioning plan and cost estimate submitted during the permitting process.

3. Continuing Maintenance Obligations and Compliance with Federal and State Requirements

The revised ordinance makes clear that wireless facilities must be maintained in a safe, structurally sound, and code-compliant condition throughout their operational life.

Routine maintenance must preserve the structural integrity of towers, antennas, equipment shelters, fencing, landscaping, and accessory improvements while ensuring continued compliance with Town regulations and applicable federal requirements. The maintenance obligation is ongoing, not just limited to the time of installation.

The revisions recognize that compliance obligations do not end once a permit is issued. Facility owners must continue to comply with applicable federal, state, and local requirements governing operation of the facility, including FCC licensing, operational standards, and other legal requirements that may apply over time. If future modifications are proposed, those changes remain subject to the applicable provisions of Chapter 17 or other governing federal or Arizona law.

4. Decommissioning and Site Restoration

The operation and maintenance provisions are closely integrated with the ordinance's decommissioning requirements. Before a facility begins operation, the permittee must prepare a comprehensive decommissioning plan addressing:

- removal of all structures and equipment;
- disposal of solid, special, and hazardous waste in accordance with applicable regulations;
- stabilization of disturbed areas;
- restoration of native vegetation where appropriate;
- erosion control measures;
- detailed cost estimates for removal; and
- identification of the parties responsible for carrying out the work.

By requiring this planning before operations commence, the Town avoids future uncertainty regarding responsibility for abandoned facilities.

Retention of Consultants – New Section 17.08

New Section 17.08 recognizes that wireless permit applications contain highly technical information beyond the ordinary expertise of Town staff. This provision expressly authorizes the Town to retain engineers, RF consultants, planners, attorneys, appraisers, environmental consultants, or other experts whenever reasonably necessary to review applications. Applicants and landowners are responsible for

reimbursing the Town's reasonable consultant costs, and the Town may require advance deposits to cover those expenses. Placing responsibility for the costs on applicants and landowners ensures that taxpayers do not have to bear the costs of ensuring proper and full review of applications.

Conclusion

The Town of Fountain Hills can promote the responsible siting of macro towers and SWFs in the face of accelerating wireless infrastructure deployment. Federal law and Arizona's 2017 small wireless legislation significantly constrain local governments, especially with respect to collocated small wireless facilities in public rights-of-way. But those laws do not eliminate the Town's authority to protect its residents, neighborhoods, natural resources, and community character.

The proposed wireless ordinances revisions are designed to reclaim and fully utilize the authority that remains available under federal and Arizona law. These include strengthening application requirements, clarifying definitions, improving review procedures, reinforcing public safety standards, preserving aesthetic protections, enhancing transparency, and ensuring long-term accountability for facilities that are approved and constructed within the Town.

These revisions balance the need for wireless infrastructure that powers mobile communications and modern conveniences with the need for Fountain Hills to protect its unique identity and legal rights as a municipality. Both ordinances represent a practical and legally defensible framework for the Town to preserve public safety, environmental resources, private property interests, and the qualities that make Fountain Hills distinct.

By adopting these revisions, the Town positions itself to respond proactively to future wireless infrastructure proposals while preserving as much local decision-making authority as current law allows. In an era where local governments are increasingly told what they cannot regulate, these ordinances is an important statement of what Fountain Hills can—and should—still protect.

Chapter 17
Wireless Telecommunications Towers and Antennas

Section 17.01 Purpose, Intent, and Applicability

A. The purpose of this chapter is to establish general guidelines for the siting of wireless communications towers and antennas. The goals of this chapter are to:

1. Protect residential areas and land uses from potential adverse impacts of towers and antennas;

2. Employ the "General Authority" preserved to the Town under 47 U.S.C. § 332(c)(7)(A) to the greatest extent the United States Congress intended while simultaneously complying with each of the substantive and procedural requirements set forth within the subsection 47 U.S.C. § 332(c)(7)(B).

3. Employ the authority reserved under A.R.S. §§ 9-462.01, and 9-596.A to exercise the Town's zoning powers, land use, planning and permitting authority, exercise its police powers, and manage access to the Town's public rights of way.

~~2~~4. ~~Encourage~~ Promote the location of towers in nonresidential areas;

~~3~~5. ~~Minimize~~ Limit the total number of towers throughout the community;

~~4~~6. Strongly encourage the joint use of new and existing tower sites as a primary option rather than construction of additional single-use towers;

~~5~~7. ~~Encourage~~ Require users of towers and antennas to locate them, to the extent possible, in areas where the adverse impact on the community is minimal;

~~6~~8. ~~Encourage~~ Require users of towers and antennas to configure them in a way that minimizes the adverse visual impact of the towers and antennas through careful design, siting, landscape screening, and ~~innovative~~ camouflaging techniques;

~~7~~9. Enhance the ability of the providers of telecommunications services to provide such services to the community quickly, effectively, and efficiently;

10. Recognize that technology and laws regarding these facilities have changed, so the Town's regulations need to change accordingly;

~~8~~11. Consider the public health and safety of communication towers; and

~~9~~12. Avoid potential damage to adjacent properties from tower failure through engineering and careful siting of tower structures.

13. Maintain the Town's status as a designated International Dark Sky Community and an optimum environment for stargazing.

14. Conserve and enhance the unique natural beauty, irreplaceable natural resources, historical, natural, and man-made character and appearance of Fountain Park, McDowell Mountain Preserve, Pleasantville Park, and views of Red Mountain and Four Peaks.

15. Protect Saguaro cacti as a unique natural resource promoting tourism, contributing to the aesthetic well-being of the community, high property values, high quality of life, unique lifestyles, and providing habitat protection for desert wildlife. Saguaro cacti grow slowly and cannot be replaced by a plant of like character.

16. Protect the quiet small-town suburban, scenic and visual character of the Town.

In furtherance of these goals, Town of Fountain Hills shall give due consideration to the Town of Fountain Hills General Plan, the Town of Fountain Hills Zoning Ordinance, existing land uses, and environmentally sensitive areas in approving sites for the location of towers and antennas.

B. It is the intent of this chapter:

1. That no wireless communication towers or antenna be sited, constructed, reconstructed, installed, materially changed, expanded, or used unless in conformity with this chapter.

2. To achieve a balance between the need to provide wireless services with the health, safety, and general welfare of the residents of Fountain Hills by balancing five (5) simultaneous objectives:

a. Enabling personal wireless service providers to provide adequate personal wireless services throughout the Town so that Town residents can enjoy the benefits of same from any FCC-licensed wireless carrier from which they choose to obtain such services;

b. Minimizing the number of cell towers and/or other personal wireless service facilities needed to provide such coverage;

c. Preventing, to the greatest extent reasonably practical, any unnecessary adverse impacts upon the Town's communities, residential areas, and individual homes; and

d. Complying with ~~all the legal requirements which the Telecommunications Act of 1996, as amended ("TCA") imposes upon the Town, when the Town receives, processes and determines~~ each of the substantive and procedural requirements set forth within the subsection 47 U.S.C. § 332(c)(7)(B) for permit applications seeking approvals for the siting, construction and operation of cell towers and/or other personal wireless service facilities.

e. Complying with the Federal Communications Commission's (FCC) legislative rules for communications facilities including those for Radio Frequency human exposure limits in 47 C.F.R. Part 1, Subpart I and those addressing State and Local government regulation of the Placement, Construction, and Modification of Personal Wireless Service Facilities, in 47 C.F.R. Part 1, Subpart U.

This Section is not intended to, nor shall it be interpreted or applied to: (1) prohibit or effectively prohibit any wireless telecommunications service provider's ability to provide reasonable and necessary wireless communications services; (2) prohibit or effectively prohibit any entity's ability to provide reasonable and necessary interstate or intrastate telecommunications service; (3) unreasonably discriminate among providers of functionally equivalent services; (4) deny any request for authorization to place, construct or modify wireless telecommunications service facilities solely on the basis of environmental effects of radio frequency emissions so long as such wireless facilities comply in every instance and regard with all FCC's regulations concerning such emissions; (5) prohibit any eligible facility that the Town may not deny under federal or state law; or (6) otherwise authorize the Town to violate any applicable federal or state law.

C. *Applicability.*

1. *New Towers and Antennas.* All new towers or antennas in the Town of Fountain Hills shall be subject to these regulations. The following exceptions apply:

a. *Amateur Radio Station Operators/Receive Only Antennas.* This chapter shall not govern any tower, or the installation of any antenna, that is under the maximum building height of the zoning district in which such structure is located and which is owned and operated by a federally licensed amateur radio station operator or is used exclusively for receive only operations.

b. *Pre-existing Towers or Antennas.* Legally established pre-existing towers and pre-existing antennas shall not be required to meet the requirements of this chapter, other than the requirements of Sections 17.06(B)(1) and 17.06(C).

c. *AM Array.* For purposes of implementing this chapter, an AM array, consisting of one (1) or more tower units and supporting ground system which functions as one (1) AM broadcasting antenna, shall be considered one (1) tower. Measurements for setbacks and separation distances shall be measured from the outer perimeter of the towers included in the AM array. Additional tower units may be added within the perimeter of the AM array by right.

d. *Small ~~Cell Towers~~ Wireless Facilities ~~in the Right-of-Way~~.* Wireless communication towers and antenna meeting the definition of small wireless facilities as contained in A.R.S. 9-591 are subject to the requirements of Article 16-2, Small Wireless Facilities, of the Town Code.

e. *Mobile or Temporary Towers.* Mobile wireless facilities, when placed on site for seven (7) consecutive days or less, provided any necessary building permit or encroachment permit is obtained.

f. *Utility Service Antennas in the Right-of-Way.* Utility service antennas as defined in this chapter placed in the public right-of-way are subject to the requirements of Article 16-3, Utility Service Antenna, of the Town Code. (24-08, Amended, 09/04/2024, Deleted and replaced)

g. Over-the-Air-Reception Devices ("OTARD") antennas as defined by 47 C.F.R. § 1.4000(a).

2. *Existing Towers and Antennas*. Any existing towers which are modified, upgraded, or changed in any manner shall be subject to the provisions of this ordinance as applicable. All existing towers and antennas shall be subject to the maintenance and operations requirements in Sec. 17.06.

Section 17.02 Definitions

For the purposes of this article, and where not inconsistent with the context of a particular section, the defined terms, phrases, words, abbreviations, and their derivations shall have the meanings provided in this section. When not inconsistent with the context, words in the present tense include the future tense, words used in the plural number include words in the singular number, and words in the singular number include the plural number. The word "shall" is always mandatory and not merely directory. The definitions set forth herein shall supersede any definitions set forth within the Town Code and Zoning Ordinance, and the definitions set forth herein below shall control and apply to Chapter 17 of the Zoning Ordinance and all subparagraphs herein.~~As used in this chapter, the following terms shall have the meanings set forth below:~~

"Accessory facility or accessory structure" means a facility or structure serving or being used in conjunction with a personal wireless services facility or complex and located on the same property or lot as the personal wireless services facility or complex or an immediately adjacent lot, including, but not limited to utility or transmission equipment storage sheds or cabinets.

"ACHP" means the Federal Advisory Council on Historic Preservation.

~~*ACHP*~~

~~*Review and compliance, meeting or exceeding the requirements of the Federal Advisory Council on Historic Preservation.*~~

ADA means American Disabilities Act.

~~*Review and compliance, meeting or exceeding the requirements of the ADA is codified in Title 42 of the United States Code, starting at Section 12101*~~

~~*ADEQ Arizona Department of Environmental Quality*~~

~~*Review and compliance, meeting or exceeding requirements of the ADEQ operates under the statutory authority found in Arizona Revised Statutes (A.R.S.) §§ 49-101 et seq., and its regulatory rules are detailed in Arizona Administrative Code (A.A.C.) Title 18, Chapters 1 through 18.*~~

"ADEQ" means the Arizona Department of Environmental Quality.

"Adequate coverage" means, as determined by the Town Council, that a specific wireless carrier's personal wireless service coverage is such that the vast majority of its customers' equipment can successfully ~~use~~ connect to the carrier's radio access network and achieve a received signal strength of -110 dBm or better and deliver a -90 dBm or better signal to the base station receiver (uplink) with a signal to noise ratio (SINR) of 3 dB or higher the vast majority of the time, in the vast majority of the geographic locations within the Town, that the Voice Drop Call Rate, e.g. the percentage ratio of dropped voice calls to total call attempts or successful call setups remains at or below 3%. ~~personal wireless service the vast majority of the time, in the vast majority of the geographic locations within the Town, that the success rate of using their devices exceeds 97%, and that any geographic gaps in a carrier's gaps in personal wireless services are not significant gaps.~~ A "gap" can exist when there is a lack of coverage or when coverage exists but quality is below the above metrics. The Town will assess whether a gap in a carrier's personal wireless services are significant, based upon such factors including, but not limited to, lack of significant physical size of the gap, whether the gap is located upon a lightly traveled or lightly occupied area, whether only a small number of customers are affected by the gap, and/or whether or not the carrier's customers are affected for only limited periods of time. A wireless carrier's coverage shall not be deemed inadequate simply because the frequency or frequencies at which its customers are using its services are not the most preferred frequency of the wireless carrier.

For claimed capacity or quality shortfalls in an area that has coverage, the applicant must demonstrate through independently-verifiable data and analysis, including network generated recordings based on user equipment reports that users are consistently experiencing dropped voice calls (in contrast to dropped sessions involving non-voice communications) at an unacceptable level during peak periods, or user devices are consistently denied access to the network due to lack of overall capacity at peak periods.

If the applicant relies on signal strength data (whether network recorded or through drive tests) to demonstrate a lack of coverage or inadequate quality/capacity the applicant must disclose all

underlying data, its thresholds for acceptable quality in such fashion that all claims and conclusions are independently verifiable.

The Town strongly encourages all applicants to use methods consistent with the FCC rules governing provider reports and mapping data in 47 C.F.R. Part 1, Subpart V (§§ 1.7000 – 1.7010).

"Alternative tower structure" means man-made trees, clock towers, bell steeples, light poles and similar alternative-design mounting structures that camouflage or conceal the presence of antennas or towers.

"Adjacent properties or properties adjacent" shall mean (i) those lots or parcels of land that abut another lot or parcel of land or public right-of-way that is contiguous to a wireless facility site or proposed site and (ii) the lots or parcels of land or public right-of-way that would be contiguous to lots or parcels or public rights-of-way but for an intervening local or collector roadway.

"Aesthetic or aesthetics" refers to subjective or objective determinations related to whether and if so, how well a facility will fit within the character of the area where the facility is proposed. This requires a broad range of factors including but not limited to visual effects and impact on property values. The Town will consider aesthetics for all applications and, where not prohibited by federal or state law, reserves the ability to impose careful placement conditions or restrictions.

"Antenna" means ~~any exterior transmitting or receiving device mounted on a tower, building or structure and used in communications that radiates or captures electromagnetic waves, digital signals, analog signals, radio frequencies (excluding radar signals), wireless telecommunications signals or other communication signals.~~ an apparatus designed for the purpose of emitting radiofrequency (RF) radiation, to be operated or operating from a fixed location pursuant to FCC authorization, for the provision of personal wireless service and any commingled information services. This definition does not apply to antennas designed for amateur radio use or satellite dishes for residential or household purposes.

"Antenna equipment" means equipment, switches, wiring, cabling, power sources, shelters or cabinets associated with an Antenna, located at the same fixed location as the Antenna, and, when Co-located on a PWSF Structure, is mounted or installed at the same time as such Antenna.

"Antenna facility" means Antenna and associated Antenna Equipment.

~~"Antenna" means an apparatus designed for emitting radiofrequency (RF) radiation to be operated or operating from a fixed location for personal wireless service.~~

~~*ANTENNA*~~

~~*Similar definition in Section 17.02*~~

~~*An apparatus designed for emitting radiofrequency (RF) radiation to be operated or operating from a fixed location for personal wireless service.*~~

~~*ANTENNA-An apparatus designed for the purpose of emitting radiofrequency (RF) radiation, to be operated or operating from a fixed location pursuant to Federal Communication Commission authorization, for the provision of Personal Wireless Services and any commingled information services. For purposes of this definition, the term Antenna does not include an unintentional radiator, mobile station, or device authorized under 47 CFR Part 15 (Radio Frequency Devices).*~~

~~*ANTENNA EQUIPMENT*~~

~~*Equipment, switches, wiring, cabling, power sources, shelters or cabinets associated with an Antenna, located at the same fixed location as the Antenna, and, when Co-located on a PWSF Structure, is mounted or installed at the same time as such Antenna.*~~

~~*ANTENNA FACILITY*~~

~~*Antenna and associated Antenna Equipment.*~~

"Applicant" means any individual, corporation, limited liability company, general partnership, limited partnership, estate, trust, joint-stock company, association of two or more persons having a joint common interest, or any other entity submitting an application for a wireless communication facility permit, site plan approval, building permit, and/or any other related approval, for the installation, operation and/or maintaining of one or more wireless communication facilities.

~~"Applicant" means any individual, corporation, limited liability company, general partnership, limited partnership, estate, trust, joint-stock company, association of two or more persons having a joint common interest, or any other entity submitting an application for a special use~~

~~permit, site plan approval, variance, building permit, and/or any other related approval, for the installation, operation and/or maintaining of one or more personal wireless service facilities.~~

"Application" shall mean all necessary and required documentation, information, and evidence that an applicant must submit to receive a wireless communications facility permit, building permit, or other Town approval for personal wireless service facilities from the Town.

~~"Application" refers to all necessary and required documentation and evidence that an applicant must submit to receive a special use permit, building permit, or other approval for personal wireless service facilities from the Town.~~

"Backhaul network" means the lines that connect a provider's towers/cell sites to one (1) or more cellular telephone switching offices, and/or long distance providers, or the public switched telephone network.

"Balloon test" means the raising of a balloon (or placement of a "crank up" tower, crane or temporary structure) equal to the height of a proposed personal wireless services facility tower for a period of 4 hours on a pre-determined date and time prior to approval of a wireless facility permit application to assess the visual impact of a proposed tower.

"Base station" means for purposes of eligible facilities requests the definition in the FCC's regulations at 47 CFR § 1.6100 shall apply. A structure or equipment at a fixed location that enables FCC-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower or any equipment associated with a tower.

~~*BASE STATION*~~

~~*Shall have the definition in the FCC's regulations at 47 CFR § 1.6100.*~~

"Board of Adjustment" means the Board of Adjustment of the Town of Fountain Hills, established pursuant to Sec. 1.07 of the Zoning Ordinance with membership, powers, duties, and responsibilities as set forth in Article 2A-2 of the Town Code.

Carriers. See Wireless Carriers.

~~"Camouflage" is defined as the use of materials incorporated into the communications tower design that give communications towers the appearance of tree branches and bark coatings, church steeples and crosses, sign structures, lighting structures, or other similar structures.~~

"Cell tower" means a free-standing, guy-wired, or otherwise supported pole, tower, or other structure designed to support or employed to support equipment and/or antennas used to provide personal wireless services, including, but not limited to, a pole, monopole, monopine, slim stick, lattice tower or other types of standing structures.

"CEQ" means the Council on Environmental Quality, as established under NEPA.

"Collocate, colocate" or "collocation, colocation" can have different meanings depending on context.

1. When and where A.R.S. §§ 9-951 — 9-600 apply, the definition in A.R.S. §§ 9-951.8 shall also apply. That definition currently states:

"Collocate" or "collocation" means to install, mount, maintain, modify, operate or replace wireless facilities on, within or adjacent to a wireless support structure or utility pole.

2. Where and when the FCC's general rules for placement, construction and modification of personal wireless facilities apply, the definition in 47 C.F.R. § 1.6002(g) shall also apply. That definition currently states:

Collocation, consistent with § 1.1320(d) and the Nationwide Programmatic Agreement (NPA) for the Collocation of Wireless Antennas, appendix B of this part, section I.B, means—

(1) Mounting or installing an antenna facility on a pre-existing structure; and/or

(2) Modifying a structure for the purpose of mounting or installing an antenna facility on that structure.

(3) The definition of "collocation" in § 1.6100(b)(2) applies to the term as used in that section.

3. Where and when the FCC's rules for wireless facility modifications apply, the definition in 47 C.F.R. § 1.6100(b)(2) shall also apply. That definition currently states:

(2) Collocation. The mounting or installation of transmission equipment on an eligible support structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes.

"Complete application, completed application" means an application that contains all the necessary and required information, records, evidence, reports, and/or data necessary to enable an informed decision to be made with respect to an application. Where any information is provided pursuant to the terms of this Chapter and the Development Services Director, Town Engineer or the Town's expert or consultant, or the Council determines, based upon information provided, that any additional, further, or clarifying information is needed as to one or more aspects, then the application will be deemed incomplete until that further or clarifying information is provided to the satisfaction of the Development Services Director, Town Engineer, Town Council or the Town's expert or consultant of the Council.

"Complex" means the entire site or facility, including all structures and equipment, located at the site.

~~*CEQ Council on Environmental Quality,*~~

~~*Review and compliance, meeting or exceeding requirements of the Council on Environmental Quality*~~

~~*"The Council on Environmental Quality derives its authority from the National Environmental Policy Act of 1969 (42 U.S.C. § 4342) and implements regulations at 40 C.F.R. §§ 1500–1508."*~~

"Council or Town Council" means the Town Council of the Town of Fountain Hills.

~~"Colocation, co-location, and/or co-locate means to install, mount or add new or additional equipment to be used for the provision of personal wireless services to a pre-existing structure, facility, or complex which is already built and is currently being used to provide personal wireless services by a different provider of such services, wireless carrier or site developer.~~

~~*CO-LOCATION and/or CO-LOCATE*~~

~~*The mounting or installation of an Antenna Facility on a pre-existing PWSF Structure, or the modification of a PWSF Structure for the purpose of mounting or installing an Antenna Facility on that PWSF Structure.*~~

"DBM" (dBm) stands for decibel milliwatts, which is a concrete measurement of the wireless signal strength of wireless networks. ~~Signal strengths are recorded in negative numbers~~ It expresses power relative to 1 milliwatt (mW) on a logarithmic scale. Emissions are measured using positive whole or fractional numbers. Received signal strengths are typically recorded in negative numbers because they are usually weaker than 1 milliwatt, and can range from approximately -30 dBm to -110 dBm. The closer the number is to 0, the stronger the cell signal. FCC, HHS and OSHA regulate safe exposure thresholds but transmitter power (in dBm) is crucial to determining exposure, as it is the starting point for calculating current exposure limits.

~~*dBm (decibel-milliwatts) is a unit of power used in radio, microwave, and fiber optic communication systems. It expresses power relative to 1 milliwatt (mW) on a logarithmic scale. FCC and OSHA regulate safe exposure thresholds, not device power directly—but transmitter power (in dBm) is crucial to determining exposure*~~

"Deployment" means the placement, construction, or substantial modification of a personal wireless service facility.

"Development Services Director" (or "Director): T" means the person appointed by the Town Manager to be the Development Services Director. If there is no such person designated by the Town Manager, the Town Manager is the Development Services Director.

"Distributed antenna system, DAS" means a network of spatially separated antenna nodes connected to a common source via a transport medium that provides personal wireless service within a geographic area.

"Effective prohibition" means a finding by the Town Council that if an application seeking approval for a specific new Personal Wireless Service Facility at a specific location, and a specific height, were to be denied, such denial would either: (a) prevent an identified Wireless Carrier from providing personal wireless services within a specific geographic area, or areas, within the Town, or (b) would prevent a specific Wireless Carrier from constructing a sufficient number of such facilities necessary to enable it to provide Personal Wireless Services within the Town.

An effective prohibition shall not be found to exist if a Wireless Carrier has Adequate Coverage in a specified geographic area , such that its end-use customers can use their cellular telephones to connect to landlines using the Carrier's Personal Wireless Services; however, the frequencies are not the "most preferred" frequencies of the Carrier.

An effective prohibition shall also not be found to exist if an applicant fails to establish before the Town Council that any existing geographic gap or capacity deficiency in the specific Wireless Carrier's coverage cannot be remedied through a less intrusive means than what is being proposed, including, but not limited to, potential installations on alternative less intrusive sites, a shorter tower or facility, the incorporation of a more stealthy design, etc.

A finding of Effective Prohibition, or lack thereof, shall be based upon an applicant's submission of sufficient probative, relevant, and sufficiently reliable evidence and the appropriate weight the Town Council deems appropriate to afford.

~~*EFFECTIVE PROHIBITION- Denial by the Town of a PWSF approval or permit for a*~~

~~*Personal Wireless Service Facility that is the Least Intrusive Means of remedying a significant gap in Personal Wireless Service coverage (the ability of wireless telephones to make and receive voice calls to and from land-lines that are connected to the national telephone network).*~~

"Eleventh hour submissions" means an applicant's submission of new and/or additional materials in support of an application less than five (5) business days before the expiration of an applicable shot clock or at an otherwise unreasonably short period of time before the expiration of the shot clock, making it impracticable for the Town Council to adequately review and consider such submissions due to their complexity, volume, or other factors, before the expiration of the shot clock.

"Eligible facilities request" means a request that meets the requirements in 47 CFR § 1.6100 for modification of an existing Tower or Base Station that does not substantially change the physical dimensions of such Tower or Base Station and involving:

(a) Co-location of new transmission equipment,

(b) Removal of transmission equipment, or

(c) Replacement of transmission equipment.

"Enure" means to operate or take effect. To serve to a person or party's use, benefit, or advantage.

"EPA" means the United States Environmental Protection Agency.

~~*EPA United States Environmental Protection Agency.*~~

~~*Review and compliance, meeting or exceeding requirements of the EPA regulations*~~

"Existing structure" means light poles, power poles, chimneys, billboards, and other similar structures, which are placed, within the Town at the time of adoption of this chapter, except existing buildings.

~~"FAA" means the Federal Aviation Administration.~~

"FAA" means the Federal Aviation Administration or its duly designated and authorized successor agency.

~~*FAA*~~

~~*The Federal Aviation Administration or its duly designated and authorized successor agency.*~~

~~*Review and compliance, meeting or exceeding requirements of the FAA*~~

"Facility" means a set of wireless transmitting and/or receiving equipment, including any associated electronics and electronics shelter or cabinet and generator.

~~*FACILITY*~~

~~*A set of wireless transmitting and/or receiving equipment, including any associated electronics and electronics shelter or cabinet and generator.*~~

~~*See Personal Wireless Service Facility or PWSF.*~~

"FCC" means the Federal Communications Commission.

~~*FCC*~~

~~*Review and compliance, meeting or exceeding requirements of the The Federal Communications Commission. Sets limits on RF emissions for wireless and broadband devices (47 CFR §§ 1.1307–1.1310)*~~

~~*FDA Food and Drug Administration*~~

~~*Review and compliance, meeting or exceeding requirements of the RF-emitting consumer devices (e.g., cell phones) for health impacts*~~

"General population/uncontrolled exposure limits" means the applicable radiofrequency radiation exposure limits set forth within 47 CFR §1.1310(e)(1), Table 1 Section (ii), made applicable pursuant to 47 CFR §1.1310(e)(3).

"HHS" means U.S. Department of Health and Human Services or its constituent agencies, including FDA Food and Drug Administration, charged with review and compliance, meeting or exceeding requirements of the RF-emitting consumer devices (e.g., electronic products such as cell phones) for health impacts.

~~"Height" means, when referring to a tower or other structure, the vertical distance measured from the natural grade level to the highest point of the structure directly above the natural grade when such structure is not located in a platted subdivision. If the structure is located in a platted subdivision, the height shall be the vertical distance measured from the finished grade as shown on the subdivision grading plans or finished grade as shown on the individual lot's grading plans (whichever is lower), to the highest point of the structure directly above the finished grade. In the event that terrain problems prevent an accurate determination of height, the Zoning Administrator shall rule as to height and appeal from that decision shall be to the Board of Adjustment.~~

"Height" means, when referring to a tower, personal wireless service facility, or personal wireless service facility structure, the height shall mean the distance measured from the pre-existing grade level to the highest point on the tower, facility, or structure, including, but not limited to, any accessory, fitting, fitment, extension, addition, add-on, antenna, whip antenna, lightning rod or other types of lightning-protection devices attached to the top of the structure.

~~*The distance measured from the pre-existing grade level to the highest point of a Personal Wireless Service Facility.*~~

"Historic Structure" means any structure that is either on the National Register of Historic Places or is eligible for inclusion in the national register, irrespective of whether or not an application for inclusion onto the national register has been filed or not filed.

~~*Review and compliance, meeting or exceeding requirements of National Register of Historic Places*~~

"Illegally excessive RF radiation or illegally excessive radiation" means RF radiation emissions at levels that exceed the legally permissible limits set forth within 47 CFR §1.1310(e)(1), Table 1 Sections (i) and (ii), as made applicable pursuant to 47 CFR §1.1310(e)(3).

"In-kind call testing" means testing designed to measure the gap in Personal Wireless Service coverage asserted by an applicant. In-Kind Call Testing for a claimed gap in Personal Wireless Services in buildings means call testing performed in buildings to establish the existence or absence of such a gap, unless the applicant provides an affidavit sworn under penalties of perjury demonstrating good faith but unsuccessful attempts to secure access to buildings to conduct such testing. In-Kind Call Testing for a claimed gap in Personal Wireless Services in vehicles or in the open air means call testing performed in vehicles or in the open to establish the existence or absence of such a gap.

"In-kind replacement" means the replacement of a malfunctioning component(s) with a properly functioning component of substantially the same weight, dimensions, and outward appearance.

~~*LAST-MINUTE SUBMISSIONS*~~

~~*An applicant's submission of new and/or additional materials in support of an application within 48 hours of the expiration of an applicable Shot Clock Period, or at an otherwise unreasonably short period of time before the expiration of the Shot Clock Period, making it impracticable for the Planning Board, Director of Planning or Director of Code Enforcement to adequately review and consider such submissions due to their complexity, volume, or other factors, before the expiration of the Shot Clock Period.*~~

"Least intrusive" means the location and design of a personal wireless service facility that would remedy a significant gap in Personal Wireless Service coverage and (1) does the least disservice to the objectives stated in § 270-219A(2), and (2) deviates as little as possible from (a) the preferential order of location in subsection K (Priority of siting locations) and (b) applicable design standards in subsection L.

"Macrocell" means a cellular base station that typically sends and receives radio signals from large towers and antennas. These include traditionally recognized cell towers, typically ranging from 50 to 199 feet in height.

"Maintenance or routine maintenance" means plumbing, electrical or mechanical work that may require a building permit but that does not constitute a modification to the personal wireless service facility. It is work necessary to assure that a wireless facility and/or telecommunications structure exists and operates reliably and in a safe manner, presents no

threat to persons or property, and remains compliant with the provisions of this chapter and FCC requirements.

"Monopole" means a wireless support structure that is not more than forty inches in diameter at the ground level and that has all of the wireless facilities mounted on the pole or contained inside of the pole. Monopoles are typically unguyed.

"Necessary, or necessity, or need" means what is technologically required for the equipment to function as designed by the manufacturer and anything less will result in prohibiting the provision of service as intended and described in the narrative of the application. "Necessary" or "need" does not mean what may be desired, preferred, or the most cost-efficient approach and is not related to an applicant's specific chosen design standards or unspecified "coverage objectives." Any situation involving a choice between or among alternatives or options is not a need or a necessity.

"NEPA" means the National Environmental Policy Act, 42 U.S.C. §4321, et seq.

~~*8 NEPA regulations and compliance. Review and compliance, meeting or exceeding requirements of NEPA*~~

"NHPA" means the National Historic Preservation Act, 54 U.S.C. 300101 et seq, and 36 CFR Part 800, et seq.

~~*Review and compliance, meeting or exceeding requirements of NHPA*~~

~~*NIOSH National Institute for Occupational Safety and Health*~~

~~*OSHA sets enforceable limits, NIOSH provides science-based guidance through RELs (Recommended Exposure Limits) Risk assessments Hazard evaluations*~~

~~*Review and compliance, meeting or exceeding requirements of OSHA*~~

"Node, DAS node" means a fixed antenna and related equipment installation that operates as part of a system of spatially separated antennas, all of which are connected through a medium through which they work collectively to provide personal wireless services, as opposed to other types of personal wireless facilities, such as macrocells, which operate independently.

"Node" means a fixed antenna and antenna equipment installation that operates as part of a system of spatially separated Antennas, all of which are connected through a medium through which they work collectively to provide personal wireless services using hand-off capabilities. A 4G (LTE) node is referred to as an ENode B, and a 5G node is referred to as a GNode B. Some sites incorporate both 4G and 5G. Some 5G capable sites still rely on a 4G network core.

"Notice address" means an address, which is required to be provided by an applicant at the time it submits an application, at which the Town, Town Council, and/or Development Services Director or Town Engineer designee can mail notice, and the mailing of any notice to such address by first-class mail shall constitute sufficient notice to any and all applicants, co-applicants, and/or their attorneys, to satisfy any notice requirements under this Chapter, as well as any notice requirements of any other local, state and/or federal law.

"Notice of incompleteness, notice of incomplete application" means a written notice, sent by electronic mail , to an applicant seeking approval for the installation of a PWSF, wherein the sender advises the applicant that its application is either incomplete, the wrong type of application, or is otherwise defective, and setting for the reason or reasons why the application is incomplete and/or defective.

"Notice of effective prohibition conditions" means a written notice, which is required to be provided to the Town at the time of the filing of any application by all applicants seeking any approval, of any type, for the siting, installation, and/or construction of a PWSF, wherein the respective applicant asserts, claims or intends to assert or claim, that a denial of their respective application, by any agent, employee, board or body of the Town, would constitute an "effective prohibition " within the meaning of the TCA, and concomitantly, that a denial of their respective application or request would violate Section 47 U.S.C. §332(c)(7)(B)(i)(II) of the TCA.

"Occupational/controlled exposure limits" means the applicable radiofrequency radiation exposure limits set forth within 47 CFR §1.1310(e)(1), Table 1 Section (i), made applicable pursuant to 47 CFR §1.1310(e)(2).

~~*OSHA requirements and compliance*~~

~~*Review and compliance, meeting or exceeding requirements of the Occupational Safety and Health Act*~~

"Permit" means written permission required by an authority to install, mount, maintain, modify, operate or replace a utility pole or monopole, to collocate a wireless facility on a utility pole or wireless support structure or to collocate wireless facilities on a monopole.

"Permittee" means a holder of a Personal Wireless Service Facility Permit.

"Personal wireless service/personal wireless services" means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services, within the meaning of 47 U.S.C. §332(c)(7)(c)(i), and as defined therein.

"Personal wireless service facility, personal wireless services facility or PWSF" means a facility or facilities used for the provision of personal wireless services, within the meaning of 47 U.S.C. §332(c)(7)(c)(ii). It means a specific location at which a structure that is designed or intended to be used to house or accommodate antennas or other transmitting or receiving equipment is located. This includes, without limitation, towers of all types and all kinds of support structures, including but not limited to buildings, church steeples, silos, water towers, signs, utility poles, or any other structure that is used or is proposed to be used as a telecommunications structure for the placement, installation and/or attachment of antennas or the functional equivalent of such. It expressly includes all related facilities and equipment such as cabling, radios and other electronic equipment, equipment shelters and enclosures, cabinets, and other structures enabling the complex to provide personal wireless services.

~~*The permit granted by the Director of Code Enforcement pursuant to which an applicant is allowed to construct and use a Personal Wireless Service Facility.*~~

~~*PERSONAL WIRELESS SERVICE FACILITY or PWSF*~~

~~*An Antenna Facility and a PWSF Structure, or any components thereof, used for the provision of Personal Wireless Service, whether such Personal Wireless Service is provided on a stand-alone basis or commingled with other wireless communications services.*~~

~~*PWSF STRUCTURE*~~

~~*A pole, Tower, Base Station, or other building, whether or not it has an existing Antenna Facility, that is used or to be used for the provision of Personal Wireless Service (whether on its own or comingled with other types of services). PWSF Structure also includes the on-site fencing, equipment, switches,*~~

~~*wiring, cabling, power sources, shelters, and cabinets associated with that PWSF Structure but not installed as part of an Antenna.*~~

"Pre-existing towers and pre-existing antennas" means any tower or antenna for which a building permit has been properly issued prior to the effective date of the ordinance codified in this chapter, including permitted towers or antennas that have not yet been constructed so long as such approval is current and not expired.

"Private easement" means an easement or other real property right that is only for the benefit of the grantor and grantee and the grantor's or grantee's successors and assigns.

"Probative evidence" means evidence which tends to prove facts, and the more a piece of evidence or testimony proves a fact, the greater its probative value, as shall be determined by the Town Council or other decision making authority, as the finder-of-fact in determining whether to grant or deny applications under this provision of the Town Code.

"Repairs" means the replacement or repair of any components of a wireless facility or complex where the replacement is substantially identical to the component or components being replaced, or for any matters that involve the normal repair and maintenance of a wireless facility or complex without the addition, removal, or change of any of the physical or visually discernible components or aspects of a wireless facility or complex that will impose new visible intrusions of the facility or complex as originally permitted.

"RF" means radiofrequency.

"RF radiation" means radiofrequency radiation. That being electromagnetic radiation, which is a combination of electric and magnetic fields that move through space as waves, and can include both Non-Ionizing radiation and Ionizing radiation.

"School" means a public, charter, or private educational institution providing instruction for elementary and secondary grades as defined in A.R.S. § 15-101 and includes the real property and facilities used for such educational purpose.

"School property" means any parcel containing a public, charter, or private educational institution providing instruction for elementary and secondary grades as defined in A.R.S. § 15-101 and includes associated playgrounds, athletic fields, administrative buildings, parking areas, and other school-related facilities.

"Section 106 Review" means a review under Section 106 of the National Historic Preservation Act.

"Setback" means the distance between (a) any portion of a personal wireless facility and/or complex, including but not limited to any and all accessory facilities and/or structures, and (b) the exterior line of any parcel of real property or part thereof which is owned by, or leased by, an applicant seeking to construct or install a personal wireless facility upon such real property or portion thereof. In the event that an applicant leases only a portion of real property owned by a landlord, the setback shall be measured from the facility to the line of that portion of the real property that is actually leased by the applicant, as opposed to the exterior lot line of the non-leased portion of the property owned by the landlord.

"Shot clock, Arizona" means the statutory timeframes within which the Town must review a wireless application for completeness of an application for wireless facilities in right-of-way pursuant to A.R.S. § 9-594.C.2 and act on a wireless application before it is otherwise deemed approved pursuant to A.R.S. § 9-594.C.2. For deemed approved purposes, the Arizona shot clock begins on the date when the Town determines the application is properly completed. For applications involving wireless facilities not in right-of-way the FCC shot clock will apply.

Shot clock, FCC: the presumptively reasonable time frame within which the Town must act on a wireless application, as defined by the FCC, shown below subject to amendment from the FCC. The shot clock begins when the applicant takes the first procedural step that the Town requires.

a. Aggregate of 60 days:

1) Standby emergency generators at previously permitted macro cell tower sites.

2) Collocation of small wireless facilities at existing small wireless facility sites.

3) Eligible Facilities Requests.

b. Aggregate of 90 days:

1) New small wireless facilities.

2) Collocation applications for additions to existing communications facilities not defined as an eligible facilities request.

c. Aggregate of 150 days:

1) All other applications, such as development of a new communication tower or facility.

~~"Shot clock" means the applicable period, which is presumed to be a reasonable period within which the Town is generally required to issue a final decision upon an application approval for the installation or substantial modification of a personal wireless services facility or structure to comply with Section 47 U.S.C. §332(c)(7)(B)(ii) of the TCA.~~

~~*SHOT CLOCK PERIOD- The sum of the number of days specified by federal regulation as the presumptively reasonable time for the Town to act on the relevant Personal Wireless Services Facility application type, plus the number of days of any applicable Tolling period, per 47 CFR § 1.6003.*~~

"SHPO" means the Arizona State Historic Preservation Office.

"Site developer or site developers" means individuals and/or entities engaged in the business of constructing wireless facilities and wireless facility infrastructure and leasing space and/or capacity upon, or use of, their facilities and/or infrastructure to wireless carriers. Unlike wireless carriers, site developers generally do not provide personal wireless services to end-use consumers.

"Small cell" means a fixed cellular base station that sends and receives radio signals and is typically mounted upon poles or support structures at substantially lower elevations than macrocell facilities.

~~"Small wireless facility" means a personal wireless service facility that meets all of the following criteria~~

~~(a) The facility does not extend the height of an existing structure to a total cumulative height of more than fifty (50) feet from ground level to the top of the structure, and any equipment affixed thereto ;~~

~~(b) Each antenna associated with the deployment is no more than three (3) cubic feet in volume;~~

~~(c) All wireless equipment associated with the facility, including any pre-existing equipment and any proposed new equipment, cumulatively total no more than twenty-eight (28) cubic feet in volume;~~

~~(d) The facility is not located on tribal land; and~~

~~(e) The facility will not result in human exposure to radiofrequency radiation in excess of the applicable FCC safety standards set forth within Table 1 of 47 CFR §1.1310(E)(1).~~

~~*SMALL WIRELESS FACILITY*~~

~~*A personal wireless service facility that meets all of the following criteria*~~

~~*The facility does not extend the height of an existing structure to a total cumulative height of more than fifty (50) feet from ground level to the top of the structure, and any equipment affixed thereto;*~~

~~*Each antenna associated with the deployment is no more than three (3) cubic feet in volume;*~~

~~*All wireless equipment associated with the facility, including any pre-existing equipment and any proposed new equipment, cumulatively total no more than twenty-eight (28) cubic feet in volume;*~~

~~*The facility is not located on tribal land; and*~~

~~*The facility will not result in human exposure to radiofrequency radiation in excess of the applicable FCC safety standards set forth within Table 1 of 47 CFR §1.1310(E)(1).*~~

~~*SMALL WIRELESS FACILITY STRUCTURE-A PWSF Structure for a Small Wireless*~~

~~*Facility.*~~

"Small wireless facility" can have different meanings depending on context.

1. When and where A.R.S §§ 9-591 – 9-599 applies, the definition in A.R.S §§ 9-591.19 shall also apply. That definition means a wireless facility that meets both of the following qualifications:

(a) All antennas are located inside an enclosure of not more than six cubic feet in volume or, in the case of an antenna that has exposed elements, the antenna and all of the antenna's exposed elements could fit within an imaginary enclosure of not more than six cubic feet in volume.

(b) All other wireless equipment associated with the facility is cumulatively not more than twenty-eight cubic feet in volume, or fifty cubic feet in volume if the equipment was ground mounted before August 9, 2017. The following types of associated ancillary equipment are not included in the calculation of equipment volume pursuant to this subdivision:

() An electric meter.

() Concealment elements.

() A telecommunications demarcation box.

() Grounding equipment.

() A power transfer switch.

() A cutoff switch.

() Vertical cable runs for the connection of power and other services

2. Where and when the FCC's general rules for placement, construction and modification of personal wireless service facilities apply, the definition in 47 CFR §1.6002(l) shall apply. That definition states as follows:

(a) Small wireless facilities are facilities that meet each of the following conditions:

(i) The facilities—

. Are mounted on structures 50 feet or less in height including their antennas as defined in § 1.1320(d); or

. Are mounted on structures no more than 10 percent taller than other adjacent structures; or

. Do not extend existing structures on which they are located to a height of more than 50 feet or by more than 10 percent, whichever is greater;

(ii) Each antenna associated with the deployment, excluding associated antenna equipment (as defined in the definition of "antenna" in § 1.1320(d)), is no more than three cubic feet in volume;

(iii) All other wireless equipment associated with the structure, including the wireless equipment associated with the antenna and any pre-existing associated equipment on the structure, is no more than 28 cubic feet in volume;

(iv) The facilities do not require antenna structure registration under part 17 of this chapter;

(v) The facilities are not located on Tribal lands, as defined under 36 CFR 800.16(x); and

(vi) The facilities do not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in § 1.1307(b).

"Special taxing district" means a special district formed pursuant to title ARS 48, chapter 11, 12, 17, 18, 19, 20 or 22.

"Special Use Permit" means the official document or permit granted by the Town Council pursuant to which an applicant is allowed to file for and obtain a building permit to construct and use a personal wireless services facility, personal wireless service equipment, and/or any associated structures and/or equipment which are used to house, or be a part of, any such facility or complex, or to be used to provide personal wireless services.

"State" means the State of Arizona.

~~"Stealth or stealth technology" means a design or treatment that minimizes adverse aesthetic and visual impacts on the land, property, buildings, and other facilities adjacent to, surrounding, and generally in the same area as the requested location of such personal wireless service facilities. This shall mean building the least visually and physically intrusive facility and complex under the facts and circumstances.~~

"Structure" means a pole, tower, base station, or other building, physical support of any form used for, or to be used for, the provision of personal wireless service.

"Substantial evidence" means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. It means less than a preponderance but more than a scintilla of evidence.

"TCA" means the Telecommunications Act of 1996, ~~47 U.S.C. §332(c)~~ Pub. L. No. 104-104, 110 Stat. 56 (1996), codified at various provisions of Title 47 U.S.C.

"Tolling or tolled" means the pausing of the running of the time period permitted under the applicable shot clock for the respective type of application for a personal wireless services facility. Where a shot clock is tolled because an application has been deemed incomplete and timely notice of incompleteness was mailed to the applicant, the submission of additional

materials by the applicant to complete the application will end the tolling, thus causing the shot clock period to resume running, as opposed to causing the shot clock to begin running anew.

"Tower" means ~~any structure that is designed and constructed primarily for the purpose of supporting one (1) or more antennas for telephone, radio and similar communication purposes, including self-supporting lattice towers, guyed towers, or monopole towers. The term includes radio and television transmission towers, microwave towers, common-carrier towers, cellular telephone towers, alternative tower structures, and the like. The term also includes the structure and any support thereto~~ a mast, pole, monopole, slim stick, guyed tower, lattice tower, freestanding tower, or other structure designed to support or employed to support antennas and other equipment, including but not limited to dishes, transceivers and arrays used to provide personal wireless services and wireless communications services. A ground- or building-mounted mast greater than ten feet tall and six inches in diameter supporting one or more antennas, dishes, arrays, etc. shall be considered a communications tower.

~~*TOWER, Commented*~~

~~*Any structure designed primarily to support one or more antennas and/or equipment used or designed for receiving and/or transmitting a wireless signal.*~~

~~*A structure built for the sole or primary purpose of supporting FCC-licensed or authorized Antennas. The term Tower also includes the on-site fencing, equipment, switches, wiring, cabling, power sources, shelters, and cabinets associated with that Tower but not installed as part of an Antenna.*~~

~~"Tower, telecommunications tower" means any structure designed primarily to support one or more antennas and/or equipment used or designed for receiving and/or transmitting a wireless signal.~~

"Town" means the Town of Fountain Hills.

"Town code" means the Town Code of the Town of Fountain Hills.

"Undertaking" means any application seeking Town approval for the installation of a personal wireless services facility licensed under the authority of the FCC shall constitute an undertaking within the meaning of NEPA, in accord with 42 CFR §137.289 and 36 CFR §800.16.

"Utility" means Arizona (under ARS § 40-360.51 (5)): A public utility includes corporations or persons engaged in furnishing water, gas, electricity, telephone service, or sewage disposal to the public for compensation.

"Utility service antennas" means antenna placed on or near utility boxes, poles, switches, storage tanks, etc., and used by a utility provider to facilitate the operation of the utility system.

"Wireless carriers or carrier" means companies that provide Personal Wireless Services to end-use consumers.

"Wireless communication" means the transmission of voice or data without cable or wires.

"Wireless communication facility" means wireless communication facilities including, but not limited to, facilities that transmit and/or receive electromagnetic signals for cellular radio telephone service, personal communications services, enhanced specialized mobile services, paging systems, and related technologies. Such facilities also include antennas, microwave dishes, parabolic antennas, and all other types of equipment used in the transmission or reception of such signals; telecommunication towers or similar structures supporting said equipment; associated equipment cabinets and/or buildings; and all other accessory development used for the provision of personal wireless services. These facilities do not include radio and television broadcast towers and government-operated public safety networks.

"Zoning ordinance" means the Zoning Ordinance of the Town of Fountain Hills, as codified in Chapter 1, Sec. 1.01 of the Zoning Ordinance.

Section 17.03 Requirements

A. *General Requirements.*

1. *Principal or Accessory Use.* Antennas and towers may be considered either principal or accessory uses. A different existing use of an existing structure on the same lot shall not preclude the installation of an antenna or tower on such lot.

2. *Lot Size.* For purposes of determining whether the installation of a tower or antenna complies with district development regulations, including but not limited to setback requirements, lot coverage requirements, and other such requirements, the dimensions of

the entire lot shall control, even though the antennas or towers may be located on leased parcels within such lot.

3. *Aesthetics.* Towers and antennas shall meet the following requirements:

a. Towers shall, subject to any applicable standards of the FAA, be painted a neutral color so as to reduce visual obtrusiveness.

b. At a tower site, the design of the buildings and related structures shall, to the extent possible, use materials, colors, textures, screening, and landscaping that will blend them into the natural setting and surrounding buildings.

c. If an antenna is installed on a structure other than a tower, the antenna and supporting electrical and mechanical equipment must be of a neutral color that is identical to, or closely compatible with, the color of the supporting structure so as to make the antenna and related equipment as visually unobtrusive as possible.

d. The choice of design for installing a new wireless communication facility or the substantial modification of an existing wireless communication facility shall be chosen to minimize the potential adverse impacts that the new or expanded facility may, or is likely to, inflict upon nearby properties. ~~Stealth designs~~ Concealment elements such as mono-palms or flagpoles should be utilized to camouflage the pole and antennas.

e. *Accessory Structures.* Unless approved by the Town Council, all equipment associated with a wireless communication tower is to be located below grade in a vault. If above grade accessory structures are approved by the Town Council, they shall comply with the following requirements.

i. Accessory structures shall maximize the use of building materials, colors, and textures designed to blend with the natural surroundings. The use of ~~camouflage~~ specified concealment elements for communications towers may be required by the Council to blend the communications tower and/or its accessory structures further into the natural surroundings using specified concealment elements. ~~"Camouflage" is defined as the use of materials incorporated into the communications tower design that give communications towers the appearance of tree branches and bark coatings, church steeples and crosses, sign structures, lighting structures, or other similar structures.~~

ii. Accessory structures shall be designed to be architecturally similar, compatible with each other, and shall be no more than 12 feet high. The buildings shall be used only for housing equipment related to the particular site. Whenever possible, the buildings shall be joined or clustered so as to appear as one (1) building.

iii. No portion of any telecommunications tower or accessory structure shall be used for a sign or other advertising purpose, including but not limited to the company name, phone numbers, banners, and streamers, except the following. A sign of no greater than 2 square feet indicating the name of the facility owner(s) and a twenty-four (24) hour emergency telephone shall be posted adjacent to any entry gate. In addition, "no trespassing" or other warning signs may be posted on the fence. All signs shall conform to the sign requirements of the Town.

f. Towers must be placed to minimize visual impacts. Applicants shall place towers on the side slope of the terrain so that, as much as possible, the top of the tower does not protrude over the ridgeline, as seen from public ways.

g. *Existing Vegetation.* Existing vegetation shall be preserved to the maximum extent possible. No cutting of trees shall take place on a site connected with an application made under this chapter prior to the approval of the application.

h. *Screening.*

i. Tree plantings may be required to screen portions of the telecommunications tower and accessory structures from nearby residential property as well as from public sites known to include important views or vistas. The standard buffer shall consist of a landscaped strip at least 4 feet wide outside the perimeter of the compound. Additional palm trees may be required to accompany towers which use a palm tree stealth design.

ii. Where a site adjoins a residential property or public property, including streets, screening suitable in type, size and quantity shall be required by the Town Council.

iii. The applicant shall demonstrate to the approving board that adequate measures have been taken to screen and abate noise emanating from on-site equipment, including but not limited to heating and ventilating units, air conditioners, and emergency power generators. Telecommunications towers shall

comply with all applicable sections of this chapter as it pertains to noise control and abatement.

i. *Utility Services Antennas.*

i. If placed on another utility structure such as a water tower, the antenna shall be painted to blend with the building or equipment it is placed on.

ii. If a separate tower structure is used, the design shall comply with the provisions in this section.

4. *Lighting.* Towers shall not be artificially lighted, unless required by the FAA or other applicable authority. If lighting is required, the lighting alternatives and design chosen must cause the least disturbance to the surrounding views and, to the degree possible while complying with FAA requirements, meet the standards set in Zoning Ordinance Chapter 8, Outdoor Lighting Control.

5. *Measurement.* For purposes of measurement, tower setbacks and separation distances shall be calculated and applied to facilities located in the Town of Fountain Hills irrespective of municipal and county jurisdictional boundaries.

6. *Not Essential Services.* Towers and antennas shall be regulated and permitted pursuant to this chapter and shall not be regulated or permitted as essential services, public utilities, or private utilities.

7. *Franchises.* Owners and/or operators of towers or antennas shall certify that all franchises required by law for the construction and/or operation of a wireless communication system in the Town of Fountain Hills have been obtained and shall file a copy of all required franchises with the Community Development Director.

8. *Signs.* No signs other than those required by law shall be allowed on an antenna or tower.

9. *Co-location and Multiple Antenna/Tower Plan.* The Town of Fountain Hills encourages tower and antenna users to submit a single application for approval of multiple towers and/or antenna sites and to submit applications, which utilize co-location with an existing wireless telecommunications provider. Applications for approval of multiple sites or for co-location with an existing provider shall be given priority in the review process.

10. *Security fencing.* ~~Towers~~ PWSF shall be enclosed by security fencing not less than 6 feet in height and no more than 8 feet in height, shall be constructed of a block or masonry, and shall be equipped with an appropriate anti-climbing device; provided, however, that the Town Council may waive such requirements, as it deems appropriate.

11. *Noise.* Submission of applications for towers and associated equipment placed above grade, including backup generators or power supplies, shall include noise and acoustical information, prepared by a qualified firm or individual, for the base transceiver station(s), equipment buildings, and associated equipment such as air conditioning units and backup generators. The Town may require the applicant to incorporate appropriate noise baffling materials and/or strategies to avoid any ambient noise from equipment reasonably likely to exceed the applicable noise regulations contained in Section 11-1-7 of the Town Code.

12. Any information of an engineering nature that the applicant submits, whether civil, mechanical, or electrical, shall be certified by an Arizona licensed professional engineer.

13. Application approval issued under this chapter shall be conditioned upon verification by the Town Engineer or designee that such tower structure is structurally sound. Such verification shall be received by the applicant prior to submission.

14. Access and Parking. Areas sufficient for access to the tower and equipment location and for temporary off-street parking of at least two vehicles shall be provided. The type and configuration of the access and parking shall be subject to the standards set forth in Zoning Ordinance Chapter 7, Parking and Loading Requirements.

B. *Minimum Setbacks and Separations.*

1. *Setbacks From Property Lines.* Except for utility service antennas, the following setback requirements shall apply to all towers; provided, however, that the Town Council may reasonably reduce the standard setback requirements if the goals of this chapter would be better served thereby:

a. Towers must be set back a distance equal to at least one hundred ~~twenty~~ fifty percent (~~100120~~150%) of the height of the tower from any adjoining lot line; provided, however, that the setback distance shall be increased as required to comply with the separation distances from residential uses in accordance with Table 1 set forth below.

b. Accessory buildings must satisfy the minimum zoning district setback requirements.

2. *Separations From Adjacent Uses.* Except for utility service antennas, the following separation requirements shall apply to all towers and antennas~~; provided, however, that the Town Council may reasonably reduce the standard separation requirements if the goals of this chapter would be better served thereby~~.

a. *Separation From Residential Uses.*

i. Tower separation shall be measured from the base of the tower to the lot line of the residential uses.

ii. Separation requirements for towers shall ~~comply with the minimum standards established in Table 1~~ be 500 feet from any residentially zoned or used land including mixed-use.

~~Table 1. Separation Requirements From Offsite Uses/Areas~~

~~Off-Site Use/Designated Area~~	**~~Separation Distance~~**
~~Single-family or duplex residential buildings~~ Residentially zoned or used land~~[1, 2]~~	~~200 feet or 300% of tower height, whichever is greater~~ 500 feet~~[3]~~
~~Vacant single-family or duplex residentially zoned land which is either platted or has preliminary plat approval which is not expired[2]~~	~~200 feet or 300% of tower height, whichever is greater[2]~~
~~Vacant unplatted residentially zoned lands[3]~~	~~100 feet or 100% of tower height, whichever is greater~~
~~Existing multifamily residential units greater than duplex units~~	
~~Nonresidentially zoned lands or nonresidential uses~~	~~None, only setbacks apply~~

~~**1** Includes modular homes and mobile homes used for living purposes. Separation measured from base of tower to the closest building wall.~~

~~2 If vacant residential property, Sseparation measured from base of tower to closest building setback line.~~

3 ~~Includes any unplatted residential use properties without a valid preliminary subdivision plan or valid development plan and any multifamily residentially zoned land greater than a duplex.~~The Town Council may reduce the standard separation requirements to 300' if, through information and data presented, the Council determines the goals of this chapter would be better served thereby.

b. *Separation Distances Between Towers.* Separation distances between towers shall be applicable for and measured between the proposed tower and pre-existing towers. The separation distances shall be measured by drawing or following a straight line between the base of the existing tower and the proposed base, pursuant to a site plan, of the proposed tower. The separation distances (listed in linear feet) shall be as shown in Table 2.

Table 2. Separation Distances Between Towers

	Monopole 65 ft. in height or greater	**Monopole less than 65 ft. in height but greater than 40 ft. in height**	**Monopole less than 40 ft. in height**
Monopole 65 ft. in height or greater	2,000 feet	1,500 feet	1,000 feet
Monopole less than 65 ft. in height but greater than 40 ft. in height	1,500 feet	1,500 feet	1,000 feet
Monopole less than 40 ft. in height	1,000 feet	1,000 feet	750 feet

C. *Buildings or Other Equipment Storage.*

1. *Antennas Mounted on Structures or Rooftops.* The equipment cabinet or structure used in association with antennas shall comply with the following:

a. Unless approved otherwise by the Town Council for good cause shown, but located in an underground vault.

b. If located above ground:

i. The cabinet or structure shall not contain more than 120 square feet of gross floor area or be more than 8 feet in height and shall be located on the ground.

~~b~~ii. Equipment storage buildings or cabinets shall comply with all applicable building codes.

2. *Antennas Mounted on Utility Poles, Light Poles, or Towers.* The equipment cabinet or structure used in association with antennas shall be located, unless otherwise approved by the Town Council in an underground vault. If approved to be above ground, then in accordance with the following:

a. In residential districts, the equipment cabinet or structure may be located:

i. In a required front yard or required street side yard, provided the cabinet structure is no greater than 3.5 feet in height and 20 square feet of gross floor area and the cabinet/structure is located a minimum of 3 feet from all lot lines. The cabinet/structure shall be screened by sight obscuring landscaping which obscures at least ninety-five percent (95%) of the structure at planting and throughout the duration of the cabinet or structure's existence with an ultimate height not to exceed forty-two (42) inches.

ii. In a required rear yard, provided the cabinet or structure is no greater than 5 feet in height or 120 square feet in gross floor area. The cabinet/structure shall be screened by sight obscuring landscaping which obscures at least ninety-five percent (95%) of the structure at planting and throughout the duration of the cabinet or structure's existence with an ultimate height of 6 feet.

iii. The entry or access side of a cabinet or structure shall be gated by a solid, sight-obscuring gate that is separate from the cabinet or structure.

b. In commercial or industrial districts the equipment cabinet or structure shall be no greater than 14 feet in height or 300 square feet in gross floor area. The structure or cabinet shall be screened by sight-obscuring landscaping with an ultimate height of 16 feet and a planted height of at least 6 feet. The entry or access side of a cabinet or

structure shall be gated by a solid, sight-obscuring gate that is separate from the cabinet or structure. Such access way shall not face residentially zoned property.

3. *Modification of Building Size Requirements.* In the case of wireless facilities considered by the Town Council, the requirements of subsections (C)(1) and (C)(2) of this section may be modified by the Town Council to address site specific conditions and requirements.

D. *Co-location.*

1. Any new telecommunications tower shall be designed to accommodate future shared use by other communications providers. Design considerations shall include sufficient area for additional ground equipment, structural design of the tower, and sufficient electrical power available for the load of at least two (2) additional wireless service providers.

2. *Good Faith.* Applicants and permittees shall cooperate and exercise good faith in co-locating wireless telecommunications facilities on the same support structures or site, if the Town so requests. Good faith shall include sharing technical information to evaluate the feasibility of co-location, and may include negotiations for erection of a replacement support structure to accommodate co-location. A competitive conflict to co-location or financial burden caused by sharing such information normally will not be considered as an excuse to comply with this section.

3. *Third Party Technical Review.* In the event a dispute arises as to whether a permittee has exercised good faith in accommodating other users, the Town may require the applicant to obtain a third-party technical study at the applicant's expense. The Town may review any information submitted by the applicant and permittee(s) in determining whether good faith has been exercised.

4. *Exceptions.* No co-location may be required where the shared use would or does result in significant interference in the broadcast or reception capabilities of the existing wireless telecommunications facilities or failure of the existing wireless telecommunications facilities to meet federal standards for emissions.

5. *Violation; penalty.* Failure to comply with co-location requirements when feasible may result in denial of a permit request or revocation of an existing permit. (24-08, Amended, 09/04/2024, Deleted and replaced)

Section 17.04 Application Types

A. *Administrative.* The following types of applications are processed administratively by staff:

1. Applications to change or modify an existing administratively approved wireless communication facility that remains in compliance with all chapter requirements.

2. Applications to change or modify an existing wireless communication facility approved through public review; provided, that the modification will not:

a. Increase the approved height of the supporting structure by more than ten percent (10%) or 20 feet, whichever is greater;

b. Cause the original approved number of antennas to be exceeded by more than fifty percent (50%);

c. Increase the original approved square footage of accessory buildings by more than 200 square feet;

d. Add new, additional, or larger microwave antenna dishes;

e. Expand the footprint of said support structure; or

f. Potentially cause significant adverse impacts on the existing support structure or the surrounding area.

3. Applications for co-location of additional antenna for an additional service provider on an existing administratively approved tower that remains in compliance with all chapter requirements.

4. Applications for co-location of additional antenna for an additional service provider on an existing tower approved through public review; provided, that the modification will not:

a. Increase the approved height of the supporting structure by more than ten percent (10%) or 20 feet, whichever is greater;

b. Cause the original approved number of antennas to be exceeded by more than fifty percent (50%);

c. Increase the original approved square footage of accessory buildings by more than 200 square feet;

d. Add new, additional, or larger microwave antenna dishes;

e. Expand the footprint of said support structure; or

f. Potentially cause significant adverse impacts on the existing support structure or the surrounding area.

5. Applications for new utility service antenna that comply with the height and setback requirements of the zoning district in which they are located.

6. Applications for mobile or temporary wireless facilities for more than seven (7) consecutive days.

~~7. Applications for new towers in the following locations:~~

~~a. Town property with the tower located at least 300 feet from a residential zoning boundary.~~

~~b. On commercial, industrial, utility, or lodging zoned property and located at least 300 feet from a residential zoning boundary.~~

~~c. Alternative tower structures when such structures and their accompanying equipment are appropriately blended into the surrounding terrain, are within the height limitations of the underlying zoning district and are at least 300 feet from a residential zoning boundary.~~

B. *Public Review.*

1. Any new tower or modification to existing towers or antennas that do not meet the requirements in subsection (A) of this section for administrative review shall require review and approval as provided in subsection 17.05 (C)~~(2)~~.

2. Any new tower not meeting the setback or separation requirements in Section 17.03(B).

Section 17.05 Application Submittal, Review, and Processing

A. *General.* Unless waived in writing by Zoning Administrator, ~~T~~the following provisions shall govern the review of all wireless communication facility applications:

1. *Complete Application.* Applications for wireless communication facilities shall be filed electronically on the Town's website by an owner of real property and shall contain the area proposed for the wireless communication facility using the process established by the Director for such applications. All such applications shall include the information required in this section. Applications filed on behalf of the property owner by a third party shall include a statement from the property owner authorizing the submittal of the application.

2. Applications shall include documentation of compliance with items listed in Section 17.03(A) as applicable to the application submitted.

3. *Inventory of Existing Sites.* Each applicant for a new tower or co-location of new antenna on an existing tower shall provide to the Development Services Director an inventory of its existing towers, antennas, or sites approved for towers or antennas, that are either within the jurisdiction of the Town of Fountain Hills or within one (1) mile of the border thereof, including specific information about the location, height, and design of each tower. Each applicant shall also provide a one (1) year build-out plan for all other wireless communications facilities within the Town. The Development Services Director may share such information with other applicants applying for administrative approvals or special use permits under this chapter or with other organizations seeking to locate antennas within the jurisdiction of Town of Fountain Hills; provided, however, that the Development Services Director is not, by sharing such information, in any way representing or warranting that such sites are available or suitable.

4. *Utility Service Antennas.*

a. If the antenna complies with the height requirements of the underlying zoning district, the plans for the antenna will be reviewed and approved with the overall site development plans if the site is being developed concurrently. If the antenna is being added to an existing utility site, the plans will be reviewed and processed consistent with the requirements of subsection (C)(2) of this section.

b. If the antenna does not comply with the height requirements of the underlying zoning district, the plans for the antenna will be reviewed and processed consistent with the requirements of subsection (C)(3) of this section.

5. A list of the full names and contact information for all applicants, co- applicants, facility owner(s), facility operator(s), site developer(s), and wireless carrier(s), property owner(s) and other related third parties and their agent(s), if any, on whose behalf the application is being submitted.

~~5~~6. Proof of Authorization for Site Occupancy. Where an applicant is not the owner of the real property upon which it seeks to install its equipment or facility, it shall submit proof of authorization to occupy the site at issue.

If the applicant is leasing all or a portion of real property upon which it intends to install its facility or equipment, then the applicant shall provide a written copy of its lease with the owner of such property. The applicant may redact any financial terms contained within the lease, but it shall not redact any portion of the lease which details the amount of area leased nor the specific portion of the real property to which the applicant has obtained the right to occupy, access, or preclude others from entering.

Where an applicant seeks to Co-Locate new equipment into an existing facility, it shall provide a copy of its written co-location agreement with the owner of such pre-existing facility, from which it may redact any financial terms.

7. Fire Safety: The applicant shall submit a Fire Safety Plan that includes a general description of the personal wireless services facility for purposes of ensuring the Fire Department is fully informed and prepared in case of a fire. The Fire Safety Plan shall include:

a. Location of all Fire Safety Plan documents.

b. Location of the facility's alarm panel.

c. List of emergency contacts.

d. Specific responsibilities assigned to designated personnel.

e. Location of signal-processing equipment.

f. Location and listing of types of power equipment, including rectifiers, inverters, distribution cabinets, bus bars, cables, and communications raceways.

g. Listing and location of batteries, including description of quantities and types of batteries, specifying whether batteries are lithium-ion, nickel cadmium, sodium-nickel, valve-regulated lead acid, and/or vented, and description of any associated exhaust ventilation system(s).

h. Description of actions to detect and prevent thermal runaway events.

i. Description of whether the facility will be located in a lightning-prone area. If the facility is to be located in a lightning-prone area, description of how the facility shall comply with NFPA 780 Standard for the Installation of Lightning Protection Systems;

j. Description of location and types of fuses used to ensure that if the wireless transmission facility experiences overcurrent resulting from current exceeding the rating of equipment or the ampacity of a conductor, the facility shall turn off temporarily.

k. Depowering procedures including identification of locations of electrical depowering devices, which include:

(a) Coded floor prints located in the Fire Safety Plan document;

(b) Facility signage to direct fire personnel to depowering locations;

(c) The method of turning off power to the following:

i. Alternating current power board. This is the primary source of electric power for a telecommunications facility and is supplied by the local power company.

ii. Standby power generator. This unit, usually a turbine or diesel generator, provides standby ac power that is transferred manually or automatically whenever a loss of ac power is experienced.

iii. Direct current primary disconnect fuse or circuit breaker bay. This unit distributes dc power to the secondary fuse or circuit breaker panels throughout

the central office. The secondary fuse or circuit breaker panels feed all the operating voltages to the central office branch circuits.

iv. Uninterruptible power supply (UPS)

v. HVAC systems serving the facility

vi. Alternative energy devices, such as wind turbines, fuel cells, photovoltaic systems, or other devices providing power to the facility.

l. Detailed electrical designs, signed and stamped by a licensed electrical engineer, demonstrating compliance with the Building, Electric and Fire Code. The Code compliance demonstration shall include all necessary underlying calculations and inputs, including but not limited to:

(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;

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

(c) Voltage Drop & Load Flow Study;

(d) Load Calculation;

(e) Panel Directories;

8. Soil Erosion and Sedimentation Control: A soil erosion and sedimentation control plan, prepared in accordance with the standards as established by the Town Engineering Division.

9. Engineer's Report: For the construction of all new wireless facilities and to the extent not already mandated herein, the applicant shall provide a report prepared and certified by a professional engineer certifying the integrity and safety of all proposed new towers and/or structures and indicating the location, type, and height of the proposed personal wireless services facility, antenna capacity, on-site and abutting off-site land uses, means of access, setbacks from property lines, all applicable American National Standards Institute (ANSI)

technical and structural codes. To the extent that an application proposes the co-location of new equipment onto an existing tower or personal wireless services facility, the applicant shall provide an engineer's report certifying that the proposed shared use will not diminish the structural integrity and safety of the existing structure and explaining what modifications, if any, will be required in order to certify above.

10. Visual Impact Analysis. The applicant shall provide a completed visual impact analysis that shall include the following:

a. A “Zone of Visibility Map” to determine locations from where the new facility will be seen.

b. A visual impact analysis which shall include photographic images taken from the perspectives of the properties situated in closest proximity to the location being proposed for the siting of the facility, as well as those properties which would reasonably be expected to sustain the most significant adverse aesthetic impacts due to such factors as their close proximity to the site, their elevation relative to the site, the existence or absence of a “clear line of sight” between the tower location and their location.

The photographic images shall depict the height at which the proposed facility shall stand when completed, including all portions and proposed attachments to the facility, including, but not limited to, the main support structure, all antennas, transmitters, whip antennas, lightning rods, t-bars, crossbars, and cantilever attachments which shall, in whole or in part, be affixed to it, any and all surrounding equipment compound(s), fencing, cellular equipment cabinets, transformers, transformer vaults and/or cabinets, sector distribution boxes, ice bridges, backup generators, including but not limited to equipment boxes, switch boxes, backup generators, ice bridges, etc., to the extent that any of such compound and/ or equipment will be visible from properties other than the property upon which the proposed tower and compound are to be installed.

The photographic images shall show the maximum silhouette, viewshed analysis, color and finish palette, and proposed screening and landscaping. The analysis shall include the results of the drone/balloon test, and other information as necessary to determine visual impact of the facility. The analysis shall include a map depicting where the photos were taken. Where consistent with the natural or built environment, the analysis shall include a

native vegetation landscaping plan with a visual simulation of how the chosen plants, at maturity, will screen the site.

11. For proposed towers and facilities taller than 100 feet, the applicant shall perform a balloon test and shall publish reasonably advanced public notice of the same to enable the Reviewing Authority, property owners, and the community an opportunity to assess the actual adverse aesthetic impact which the proposed facility is likely to inflict upon the nearby properties and surrounding community. Said date and time will be established by the Development Services Director in coordination with the applicant, including an alternative date in case of inclement weather. If a balloon is used, the diameter shall be equal to the largest antenna or dish proposed for the CRS tower or the width of the tower, whichever is larger. The applicant will be responsible for publishing a public notice of the balloon test in at least one local newspaper publication and notifying abutters owning property within one thousand (1,000) feet radius, via U.S. Mail at least one week prior to the test.

12. If the application is for a facility that will not be attached to an existing utility pole and the facility's proposed height will be greater than 30 feet then structural elevations of the facility(ies) shall include any trees and other structures within twenty (20') feet, and their height.

~~6~~13. Environmental Assessment Form. A completed environmental assessment form (EAF) and a completed visual EAF addendum if required by ADEQ.

~~7~~14. FCC Compliance Report.

An FCC compliance report, prepared by a licensed engineer, and certified under penalties of perjury, that the content thereof is true and accurate, wherein the licensed engineer shall certify that the proposed facility will be FCC compliant as of the time of its installation, meaning that the facility will not expose members of the general public to radiation levels that exceed the permissible radiation limits which the FCC has set.

If it is anticipated that more than one carrier and/or user is to install transmitters into the facility, the FCC compliance report shall take into account anticipated exposure from all users on the facility and shall indicate whether or not the combined exposure levels will or

will not exceed the permissible General Population Exposure Limits, or alternatively, the occupational Exposure Limits, where applicable.

Such FCC Compliance Report shall provide the calculation or calculations with which the engineer determined the levels of RF radiation and/or emissions to which the facility will expose members of the general public.

On the cover page of the report, the report shall explicitly specify: (a) Whether the applicant and their engineer are claiming that the applicable FCC limits based upon which they are claiming FCC compliance are the General Population Exposure Limits or the Occupational Exposure Limits. If the applicant and/or their engineer are asserting that the Occupational Exposure Limits apply to the proposed installation, they shall detail a factual basis as to why they claim that the higher set of limits is applicable, (b) The exact minimum distance factor, measured in feet, which the applicant's engineer used to calculate the level of radiation emissions to which the proposed facility will expose members of the general public. The minimum distance factor is the closest distance (i.e., the minimum distance) to which a member of the general public shall be able to gain access to the transmitting antennas mounted upon, or which shall be a part of, the proposed facility.

~~8~~15. FCC License. A copy of any applicable Federal Communications Commission license possessed by any carrier named as an applicant, co-applicant, or whose equipment is proposed for installation as of the time the application is being filed with the Town.

~~9~~16. Effective Prohibition Claims.

a. The Town is aware that applicants seeking approvals for the installation of new wireless Facilities often assert that federal law, and more specifically the TCA, prohibits the local government from denying their respective applications.

In doing so, they assert that their desired facility is "necessary" to remedy one or more significant gaps in a carrier's personal wireless service, and they proffer computer-generated propagation maps to establish the existence of such purported gaps.

The Town is additionally aware that, in ~~August 2020~~December 2018, driven by a concern that propagation maps created and submitted to the FCC by wireless carriers were inaccurate, the FCC caused its staff to perform actual drive tests, wherein the FCC staff performed 24,649 tests, driving nearly ten thousand (10,000) miles through ~~nine~~

~~(9)~~twelve (12) states, with an additional 5,916 stationary tests conducted at 42 locations situated in nine (9) states.

At the conclusion of such testing, the FCC Staff determined that the accuracy of the propagation maps submitted to the FCC by the wireless carriers had ranged from as little as 16.2% accuracy to a maximum of 64.3% accuracy.

As a result, the FCC Staff recommended that the FCC no longer accept propagation maps from wireless carriers without supporting drive test data to establish their accuracy. A copy of the FCC Staff's 66-page report is made a part of this Chapter as Appendix 1.

The Town considers it of critical import that applicants provide truthful, accurate, complete, and sufficiently reliable data to enable the Town Council to render determinations upon applications for new wireless facilities consistent with this Chapter's requirements and the TCA's statutory requirements.

Consistent with same, if, at the time of filing an application under this Chapter, an applicant intends to assert before the Town Council or the Town that: (a) an identified wireless carrier suffers from a significant gap in its personal wireless services within the Town, (b) that the applicant's proposed installation is the least intrusive means of remedying such gap in services, and/or (c) that under the circumstances pertaining to the application, a denial of the application by the Town Council would constitute an "effective prohibition" under Section 47 U.S.C. §332 the TCA, then, at the time of filing such application, the applicant shall be required to file a written statement which shall be entitled:

"Notice of Effective Prohibition Conditions"

If an applicant files a Notice of Effective Prohibition Conditions, then the applicant shall be required to submit Probative Evidence to enable the Town Council to reasonably determine:

i. Whether or not the conditions alleged by the respective applicant exist,

ii. Whether there exists a significant gap or gaps in an identified wireless carrier's personal wireless services within the Town,

iii. The geographic locations of any such gaps, and

iv. The geographic boundaries of such gaps, to enable the Town Council to determine whether granting the respective application would be consistent with the requirements of this Chapter and the legislative intent behind same, and whether or not Federal law would require the Town Council to grant the respective application, even if it would otherwise violate the Town Code, including, but not limited to, this Chapter.

b. The additional materials which the applicant shall then be required to provide shall include the following:

i. Drive Test Data and Maps. If, and to the extent that an applicant claims that a specific wireless carrier suffers from a significant gap in its personal wireless services within the Town, the applicant shall conduct or cause to be conducted a drive test within the specific geographic areas within which the applicant is claiming such gap or gaps exist, for each frequency at which the carrier provides personal wireless services. The applicant shall provide the Town and the Town Council with the actual drive test data recorded during such drive test, in a simple format which shall include, in table format:

(a) The date and time for the test or tests,

(b) The location, in longitude and latitude, of each point at which signal strength was recorded and

(c) Each signal strength recorded, measured in DBM, for each frequency. Such data is to be provided in a separate table for each frequency at which the respective carrier provides personal wireless services to any of its end-use customers.

(d). The applicant shall also submit drive test maps depicting the actual signal strengths recorded during the actual drive test for each frequency at which the carrier provides personal wireless services to its end-use customers.

If an applicant claims that it needs a “minimum” signal strength (measured in DBM) to remedy its gap or gaps in service, then for each frequency, the applicant

shall provide three (3) signal strength coverage maps reflecting actual signal strengths in three (3) DBM bins, the first being at the alleged minimum signal strength, and two (2) additional three (3) DBM bin maps depicting signal strengths immediately below the alleged minimum signal strength claimed to be required.

By way of example, if the applicant claims that it needs a minimum signal strength of – 95 DBM to remedy its alleged gap in service, then the applicant shall provide maps depicting the geographic area where the gap is alleged to exist, showing the carrier's coverage at – 95 to -98 DBM, -99 to -101 DBM, and -102 to -104 DBM, for each frequency at which the carrier provides personal wireless services to its end-use customers.

ii. Denial of Service and/or Dropped Call Records. If and to the extent that an applicant claims that a specific wireless carrier suffers from a capacity deficiency or a gap in service that renders the carrier incapable of providing adequate coverage of its personal wireless services within the Town, then the applicant shall provide dropped call records and denial of service records evidencing the number and percentage of calls within which the carrier's customers were unable to initiate, maintain and conclude the use of the carrier's personal wireless services without actual loss of service, or interruption of service.

~~10~~17. Estimate for Cost of Removal of Facility. At or prior to the filing of an application for a special use permit for the installation of a new personal wireless service facility, each respective applicant shall provide a written estimate for the cost of the decommissioning and removal of the facility, including all equipment that comprises any portion or part of the facility, compound and/or complex, as well as any accessory facility or structure, including the cost of the full restoration and reclamation of the site, to the extent practicable, to its condition before development in accord with the decommissioning and reclamation plan required herein. The Town Council's Engineer shall review this estimate. A bond for the cost of removal as required in Sec. 17.06 A. 2. shall be filed prior to commencement of construction.

~~11~~18. Property Owner Consent & Liability Acknowledgement. A signed written consent from each owner of the subject real property upon which the respective applicant is seeking

installation of its proposed personal wireless service facility, wherein the owner or owners both authorize the applicant to file and pursue its application and acknowledge the potential landowner's responsibility, under Section 17.08 for engineering, legal and other consulting fees incurred by the Town.

~~5~~12~~2~~19. *Applications Using Existing Towers.*

a. Dimensioned, to-scale drawings showing the existing and proposed antenna on the tower including the height of the tower and the antennas.

b. The number and type of existing and proposed antennas.

c. Engineering calculations documenting the structural changes and certifying the tower's ability to carry the new antennas.

d. Dimensioned, to-scale drawings illustrating modification of ground equipment, if any.

~~6~~13~~3~~20. *Applications Using New Towers ~~– Information Required~~.*

In addition to any information required for applications for special use permits pursuant to Chapter 2, Section 2.02, applicants for a new wireless facility shall submit the following information:

a. A site plan as required in Section 2.04 plus zoning, General Plan classification of the site and all properties within the applicable separation distances set forth in Section 17.03(B)(1), adjacent roadways, proposed means of access, elevation drawings of the proposed tower and any other structures, photo simulations showing the tower in the proposed location from at least four (4) directions, and other information deemed by the Development Services Director to be necessary to assess compliance with this chapter.

b. The setback distance between the proposed tower and the nearest residential unit and residentially zoned properties. Include an illustration of the fall zone for the tower.

c. The separation distance from other towers described in the inventory of existing sites submitted pursuant to Section 17.03(B)(2) shall be shown on an updated site plan

or map. The applicant shall also identify the type of construction of the existing tower(s) and the owner/operator of the existing tower(s), if known.

d. Method of fencing, and finished color and, if applicable, the method of camouflage and illumination.

e. A description of compliance with Sections 17.03(A)(3), 17.03(A)(4), 17.03(A)(5), 17.03(A)(7), 17.03(A)(8), 17.03(A)(9), 17.03(A)(10), 17.03(A)(11), 17.03(B), subsection (A)(3) of this section, Sections 17.06(A) and 17.06(B) and all applicable federal, state or local laws.

f. A notarized statement by the applicant as to whether construction of the tower will accommodate collocation of additional antennas for future users.

g. Identification of the entities providing the backhaul network for the tower(s) described in the application and other cellular sites owned or operated by the applicant in the municipality.

h. ~~A description of the suitability of the use of existing towers, other structures or alternative technology not requiring the use of towers or structures to provide the services to be provided through the use of the proposed new tower.~~ Alternatives Analysis. An itemized list of alternative sites considered, with a comprehensive explanation of reasons alternative sites are not technologically feasible. Explanation shall include specific comparative analysis of how different sites would impact aesthetic values, and other environmental values.

i. A description of the feasible alternative location(s) of future towers or antennas within the Town of Fountain Hills based upon existing physical, engineering, technological or geographical limitations in the event the proposed tower is erected.

j. A statement of compliance with Federal Communications Commission (FCC) radio frequency (RF) exposure standards.

~~7~~1420. *Filing Fee.* Payment of a filing fee in an amount established by a schedule adopted by resolution of the Council and filed in the offices of the Town Clerk. No part of the filing fee shall be returnable.

B. *Shot Clocks and Tolling.* To comply with the requirements of Section 47 U.S.C. §332(c)(7)(B)(ii) of the TCA, the following shot clock periods set forth hereinbelow shall be presumed to be reasonable periods within which the Town shall render determinations upon applications for wireless communication facilities.

The Town shall render determinations upon such applications within the periods set forth hereinbelow, unless the applicable shot clock period listed below is tolled, extended by agreement or the processing of the application is delayed due to circumstances beyond the Town's control.

1. *Application Shot Clocks.*

   a. *Receipt of Initial Application.* Upon receipt of an application, the Development Services Director, or designee, shall review the application for completeness. If the Director determines the application is: (i) incomplete, (ii) missing required application materials, (iii) is the wrong type of application, or (iv) is otherwise defective, then, within ten (10) days for administrative applications and thirty (30) days for public hearing applications of the Town's receipt of the application, the Director, or their designee, shall notify the applicant of the finding and state what is needed to have a complete application.

   The notice of incompleteness shall toll the shot clock, which shall not thereafter resume running unless and until the applicant tenders an additional submission to the Director to remedy the issues identified in the notice of incomplete application. The submission of any responsive materials by the applicant shall automatically cause the shot clock period to resume running.

   If upon receipt of any additional materials from the applicant, the Director determines that the application is still incomplete and/or defective, then the Director shall, once again notify the applicant within ten (10) days for administrative applications and thirty (30) days for public hearing applications of the applicant having filed its supplemental or corrected materials to the Town and the shot clock shall once again be tolled, and the same procedure provided for hereinabove shall be repeated.

   If Applicant does not cure the stated deficiencies within 30 days, the application shall be considered withdrawn or closed.

b. *Application Review.* The shot clock for administrative applications ~~which do not involve new towers~~ is ninety (90) days. The shot clock for ~~administrative~~ applications with new towers, monopoles, utility poles and other wireless facilities that trigger public review applications is one hundred fifty (150) days.

2. *Shot Clock Tolls, Extensions and Reasonable Delay Periods.* Consistent with the letter and intent of Section 47 U.S.C. §332(c)(7)(B)(ii) of the TCA, each of the shot clock periods set forth within subsection (B) of this section shall generally be presumed to be sufficient periods within which the Town shall render decisions upon applications.

Notwithstanding the same, the applicable shot clock periods may be tolled, extended by mutual agreement between any applicant and/or its representative and the Town, and the Town shall not be required to render its determination within the shot clock period presumed to be reasonable for each type of application, where the processing of such application is reasonably delayed, as described hereinbelow.

a. *Tolling of the Applicable Shot Clock Due to Incompleteness and/or Applicant Error.* As provided for within subsection (B)(1) of this section, in the event that the Development Services Director deems an application incomplete, the Director shall send a notice of incompleteness to the applicant to notify the applicant that its application is incomplete and/or contains material errors, and shall reasonably identify the missing information and/or documents and/or the error(s) in the application.

If the Director sends a notice of incompleteness as described hereinabove, the applicable shot clock shall automatically be tolled, meaning that the applicable shot clock period within which the Town is required to render a final decision upon the application shall immediately cease running, and shall not resume running, unless and until the Town receives a responsive submission from the applicant.

If and when the applicant thereafter submits additional information in an effort to complete its application, or cure any identified defect(s), then the shot clock shall automatically resume running, but shall not be deemed to start running anew.

The applicable shot clock period shall, once again, be tolled if the Director thereafter provides a second notice that the application is still incomplete or defective, despite any

additional submissions which have been received by the Town, from the applicant, up to that point.

b. *Shot Clock Extension by Mutual Agreement.* The Town shall be free to extend any applicable shot clock period by mutual agreement with any respective applicant. This discretion on the part of the Town shall include the Town's authority to request, at any time, and for any period of time the Town may deem reasonable or appropriate under the circumstances, consent from a respective applicant to extend the applicable shot clock period to enable the Town, the applicant, or any relevant third party, to complete any type of undertaking or task related to the review, analysis, processing, and determination of the particular application, which is then pending before the Town, to the extent that any such undertaking, task, or review is consistent with, or reasonably related to, compliance with any federal, state, or local law and/or the requirements of any provision of the Town Code, including but not limited to this chapter.

In response to any request by the Town, the applicant, by its principal, agent, attorney, site acquisition agent, or other authorized representative, can consent to any extension of any applicable shot clock by affirmatively indicating its consent either in writing or by affirmatively indicating its consent on the record at any public hearing or public meeting. The Town shall be permitted to reasonably rely upon a representative of the applicant indicating that they are authorized to grant such consent on behalf of the respective applicant, on whose behalf they have been addressing the Town within the review process.

c. *Reasonable Delay Extensions of Shot Clock Periods.* The Town recognizes that there may be situations wherein, due to circumstances beyond the control of the Town and/or the Town Council, the review and issuance of a final decision upon an application for a wireless communication facility cannot reasonably be completed within the application shot clock periods delineated within subsection (B) of this section.

If, despite the exercise of due diligence by the Town, the determination regarding a specific application cannot reasonably be completed within the applicable shot clock period, the Town shall be permitted to continue and complete its review and issue its determination at a date beyond the expiration of the applicable period, if the delay of such final decision is due to circumstances including, but not limited to, those

enumerated hereinbelow, each of which shall serve as a reasonable basis for a reasonable delay of the applicable shot clock period.

i. In the event that the rendering of a final decision upon an application under this chapter is delayed due to natural and/or unnatural events and/or forces which are not within the control of the Town, such as the unavoidable delays experienced in government processes due to the COVID 19 pandemic, and/or mandatory compliance with any related federal or state government orders issued in relation thereto, such delays shall constitute reasonable delays which shall be recognized as acceptable grounds for extending the period for review and the rendering of final determinations beyond the period allotted under the applicable shot clock.

ii. In the event that applicant tenders eleventh-hour submissions to the Town in the form of (a) expert reports, (b) expert materials, and/or (c) materials which require a significant period for review due either to their complexity or the sheer volume of materials which an applicant has chosen to provide to the Town at such late point in the proceedings, the Town shall be afforded a reasonable time to review such late-submitted materials.

If reasonably necessary, the Town shall be permitted to retain the services of an expert consultant to review any late-submitted expert reports which were provided to the Town, even if such review or services extend beyond the applicable shot clock period, so long as the Town completes such review and retains and secures such expert services within a reasonable period of time thereafter and otherwise acts with reasonable diligence in completing its review and rendering its final decision.

C. *Review and Processing of Applications.*

1. Conformity to the following shall be considered in review of all applications:

a. The application is consistent with the objectives of this chapter.

b. The height of the proposed tower.

c. The adequacy of the proposed site, considering such factors as the sufficiency of the size of the site to comply with the established criteria, the configuration of the site, and the extent to which the site is formed by logical boundaries (e.g., topography, natural

features, streets, relationship of adjacent uses, etc.) that provide for the ability to comply with the provisions of this chapter.

d. The extent to which the proposal responds to the impact of the proposed development on adjacent land uses, especially in terms of visual impact.

e. The extent to which the proposed telecommunications facility ~~is camouflaged (i.e., use of stealth technology)~~ uses concealment elements.

f. The extent to which the proposed facility is integrated with existing structures (i.e., buildings, signs, utility poles, etc.) with particular reference to design characteristics that have the effect of reducing or eliminating visual obtrusiveness.

g. An applicant's compliance with all town requirements with respect to previous applications.

h. Whether the proposed installation will inflict a significant adverse impact upon the property values of properties that are located adjacent to, or in close proximity to, the proposed site or properties that are otherwise situated in a manner that would cause the proposed installation to inflict a significant adverse impact upon their value.

i. Whether the proposed installation will be incompatible with the use and/or character of properties located adjacent to or in close proximity to the proposed site or other properties situated in a manner that would cause the proposed installation to be incompatible with their respective use.

j. Whether the proposed installation will be incompatible with and/or would have an adverse aesthetic impact upon or detract from the use and enjoyment of, and/or character of, recognized aesthetic assets of the Town, including, but not limited to, scenic areas and/or scenic ridgelines, scenic areas, public parks, and/or any other traditionally or historically recognized valuable scenic assets of the Town.

k. Whether the proposed installation shall have a sufficient fall zone and/or safe zone around the facility to afford the general public safety against the potential dangers of structural failure, icefall, debris fall, and fire.

l. Whether the applicant has mitigated the potential adverse impacts of the proposed facility to the greatest extent reasonably feasible. To determine mitigation efforts on the

part of the applicant, the mere fact that a less intrusive site, location, or design would cause an applicant to incur additional expense is not a reasonable justification for an application to have failed to propose reasonable mitigation measures.

2. *Review of Administrative Applications.*

a. Administrative applications will be reviewed by staff using the Town's standard building permit review processes.

~~b. Applications for new towers shall provide staff with the same information as required in subsection of this section for public review applications.~~

~~c~~b. Applications for mobile or temporary wireless facilities which remain in place for more than seven (7) consecutive days must submit a request for a temporary use permit as provided in Section 2.03.

3. *Review and Processing of Public Review Applications.*

a. Applications which require public review and approval on private property will be processed as special use permits and follow the requirements listed in Section 2.02 for special use permits. Applications on Town owned property will not require a special use permit but will follow the same requirements for notice for review by the Town Council.

b. ~~In addition to the factors listed in subsection (C)(1) of this section for review of applications, public review applications will also be subject to the standards for consideration of special use permit applications pursuant to Chapter 2, Section 2.02 of this chapter.~~ Factual Determinations.

To decide applications under this Section, the Town Council shall render factual determinations, which shall include two (2) specific types of factual determinations, as applicable.

First, the Council shall render local zoning determinations according to Section i. hereinbelow.

Then, if, and only if, an applicant asserts claims that a denial of its application would effectively prohibit an identified Wireless Carrier from providing Personal Wireless Services within the Town, or its proposed wireless facility or installation is necessary to

remedy a significant gap in personal wireless services for an explicitly identified Wireless Carrier, and that its proposed installation is the least intrusive means of remedying a specifically identified significant gap or gaps.

The Council shall then additionally render TCA determinations in accord with Section ii. herein below.

The Council shall separately record each factual determination it makes in a written decision and shall reference, or make note of, the evidence-based upon which it rendered each of its factual determinations.

Each factual determination made by the Council shall be based upon Substantial Evidence. For purposes of this provision, "Substantial Evidence" shall mean such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. It means less than a preponderance but more than a scintilla of evidence.

Evidence that the Council may consider shall include any evidence submitted in support of an application and any evidence submitted by anyone opposing a respective application, whether such evidence is in written or photographic form or whether it is in the form of testimony by any expert, or any person who has personal knowledge of the subject of their testimony. The Council may, of course, additionally consider as evidence any information or knowledge which they, themselves, personally possess and any documents, records, or other evidence which is a matter of public record, irrespective of whether such public record is a record of the Town, or is a record of or is maintained by, another federal, state and/or other governmental entity and/or agency which maintains records which are available for, or subject to, public review.

The requirements for specific factual determinations set forth below are intended to enure to the benefit of the Town, its residents, and property owners, and not applicants.

If, and to the extent that the Town Council fails to render one or more of such determinations, that omission shall not constitute grounds upon which the respective applicant can seek to annul, reverse or modify any decision of the Town Council.

i Local Zoning Determination

The Council shall make the following factual determinations as to whether the application meets the requirements for granting a special use permit under this Chapter.

(a) Compliance with Section 2.02

Whether the proposed installation will meet each of the conditions and standards set forth within Section 2.02 in the absence of which the Town Council is not authorized to grant a special use permit.

(b) Potential Adverse Aesthetic Impacts

Whether the proposed installation will inflict a significant adverse aesthetic impact upon properties located adjacent to, or in close proximity to, the proposed site or any other properties situated in a manner that would sustain significant adverse aesthetic impacts by the installation of the proposed facility.

(c) Potential Adverse Impacts Upon Real Estate Values

Whether the proposed installation will inflict a significant adverse impact upon the property values of properties that are located adjacent to, or in close proximity to, the proposed site or properties that are otherwise situated in a manner that would cause the proposed installation to inflict a significant adverse impact upon their value.

(d) Potential Adverse Impact Upon the Character of the Surrounding Community

Whether the proposed installation will be incompatible with the use and/or character of properties located adjacent to or in close proximity to the proposed site or other properties situated in a manner that would cause the proposed installation to be incompatible with their respective use.

(e) Potential Adverse Impacts Upon Historic Properties or Historic Districts

Whether the proposed installation will be incompatible with and/or would have an adverse impact upon, or detract from the use and enjoyment of, and/or character of a historic property, historic site, and/or historic district, including,

but not limited to, historic structures, properties and/or districts which are listed on, or are eligible for listing on, the National Register of Historic Places.

(f) Potential Adverse Impacts Upon Ridgelines or Other Aesthetic Resources of the Town

Whether the proposed installation will be incompatible with and/or would have an adverse aesthetic impact upon or detract from the use and enjoyment of, and/or character of, recognized aesthetic assets of the Town, including, but not limited to, scenic areas and/or scenic ridgelines, scenic areas, public parks, and/or any other traditionally or historically recognized valuable scenic assets of the Town.

(g) Sufficient Fall Zones

Whether the proposed installation shall have a sufficient fall zone and/or safe zone around the facility to afford the general public safety against the potential dangers of structural failure, icefall, debris fall, and fire.

(h) Mitigation

Whether the applicant has mitigated the potential adverse impacts of the proposed facility to the greatest extent reasonably feasible. To determine mitigation efforts on the part of the applicant, the mere fact that a less intrusive site, location, or design would cause an applicant to incur additional expense is not a reasonable justification for an application to have failed to propose reasonable mitigation measures.

If, when applying the evidentiary standards set forth in Section 17.05 C. 3. b. i. hereinabove, the Town Council determines that the proposed facility would not meet the standards set forth within Section 2.02 or that the proposed facility would inflict one or more of the adverse impacts described hereinabove to such a substantial extent that granting the respective application would inflict upon the Town and/or its citizens and/or property owners the types of adverse impacts which this provision was enacted to prevent, the Town Council shall deny the respective application unless the Council additionally finds that a denial of the application

would constitute an Effective Prohibition, as provided for in Sections 17.05 C. 3. b. ii. and iii immediately hereinbelow.

ii. TCA Determinations

In cases within which an applicant has filed a "Notice of Effective Prohibition Conditions," the Town Council shall determine if a denial of the respective application would "Effectively Prohibit" a specifically identified Wireless Carrier from providing Personal Wireless Services within any geographic area or areas in the Town.

More specifically, the Town Council shall determine whether a denial of the specific application would either: (i) prevent an identified Wireless Carrier from providing personal wireless services within a specific geographic area or areas within the Town or (ii) would prevent a specific Wireless Carrier from constructing a sufficient number of such facilities necessary to enable it to provide Personal Wireless Services within the Town.

In determining whether a denial of any specific application would constitute an "Effective Prohibition," the Town Council shall determine: (1) whether an applicant has established that an identified Wireless Carrier suffers from one or more significant gaps in its Personal Wireless Services, and (2) whether its proposed installation is the least intrusive means of remedying any such gap or gaps.

(a) Significant Gap in Personal Wireless Services of an Identified Carrier

The Town Council shall determine whether the applicant has established, based upon probative evidence provided by the applicant and/or its representative, that a specific Wireless Carrier suffers from a significant gap in its personal wireless services within the Town.

In rendering such determination, the Council shall consider factors including, but not necessarily limited to:

(1) Whether the identified Wireless Carrier, which is alleged to suffer from any significant gap in their personal wireless services, already provides Adequate Service in its Personal Wireless Services to its customers at any

frequency being used by the carrier to provide personal wireless services to its end-use customers,

(2) Whether any such alleged gap is relatively large or small in geographic size,

(3) Whether the number of the carrier's customers affected by the gap is relatively small or large,

(4) Whether or not the location of the gap is situated on a lightly traveled road, or sparsely or densely occupied area, and/or

(5) Overall, whether the gap is relatively insignificant or otherwise relatively de minimis.

An Effective Prohibition shall not be found to exist under subparagraph (iii) hereinbelow if a Wireless Carrier has adequate coverage in any specified geographic area, such that its end-use customers can use their cellular telephones to connect to landlines using the Carrier's Personal Wireless Services, but the frequency at which the customers are using such services is not the frequency most desired by the Carrier.

(b) Least Intrusive Means of Remedying Gap(s) in Service

The Town Council shall determine whether the applicant has established, based upon probative evidence provided by the applicant and/or its representative, that the installation of the proposed facility at the specific site proposed by the applicant and the specific portion of the site proposed by the applicant, and at the specific height proposed by the applicant, is the least intrusive means of remedying whatever significant gap or gaps which the applicant has contemporaneously proven to exist as determined by the Town Council based upon any evidence in support of, and/or in opposition to, the subject application.

In rendering such determination, the Council shall consider factors including, but not necessarily limited to:

(1) Whether the proposed site is the least intrusive location at which a facility to remedy an identified significant gap may be located, and the applicant has

reasonably established a lack of potential alternative less intrusive sites and lack of sites available for co-location,

(2) Whether the specific location on the proposed portion of the selected site is the least intrusive portion of the site for the proposed installation

(3) Whether the height proposed for the facility is the minimum height actually necessary to remedy an established significant gap in service,

(4) Whether or not a pre-existing structure can be used to camouflage the facility and/or its antennas,

(5) Whether or not, as proposed, the installation mitigates adverse impacts to the greatest extent reasonably feasible through the employ of Stealth design, screening, use of color, noise mitigation measures, etc., and/or

(6) Overall whether or not there is a feasible alternative to remedy the gap through alternative, less intrusive substitute installations.

An Effective Prohibition shall also not be found to exist in subparagraph (iii) hereinbelow if an applicant fails to establish before the Town Council that any existing geographic gap or capacity deficiency in the specific Wireless Carrier's coverage cannot be remedied through a less intrusive means than what is being proposed, including, but not limited to, potential installations on alternative less intrusive sites, a shorter tower or facility, the incorporation of a more stealthy design, etc.

iii. Finding of Effective Prohibition or Lack of Effective Prohibition

After considering the evidence presented before it, the Town Council shall determine whether or not a denial of the respective application would constitute an effective Prohibition.

If the Town Council affirmatively determines that the applicant has failed to establish either: (i) that a denial of the application would prevent an identified Wireless Carrier from providing personal wireless services within a specific geographic area or areas within the Town or (ii) that a denial of the application would prevent a specific Wireless Carrier from constructing a sufficient number of such facilities necessary to

enable it to provide Personal Wireless Services within the Town, then the Town Council shall find that a denial of the application does not constitute an Effective Prohibition.

If the Town Council affirmatively determines that: (i) a denial of the application would prevent an identified Wireless Carrier from providing personal wireless services within a specific geographic area or areas within the Town, or (ii) that a denial of the application would prevent a specific Wireless Carrier from constructing a sufficient number of such facilities necessary to enable it to provide Personal Wireless Services within the Town, then the Town Council shall find that a denial of the application would constitute an Effective Prohibition, and the Town Council shall grant the subject application, irrespective of whether or not the granting of same would otherwise be inconsistent with any other provision of this Section §17.05 C. 3. b. Provided, the Town reserves the right to deny an application even if doing so leads to an effective prohibition to the extent allowed by the safe harbors contained in 47 U.S.C. §§ 253(b) and (c) and incorporated into 332(c)(7)(B)(i), based on the evidence of record.

c. *Availability of Suitable Existing Towers, Other Structures, or Alternative Technology.* No new tower shall be permitted unless the applicant demonstrates to the reasonable satisfaction of the Town Council that no existing tower, structure or alternative technology that does not require the use of towers or structures can accommodate the applicant's proposed antenna. An applicant shall submit information requested by the Town Council related to the availability of suitable existing towers, other structures or alternative technology. Evidence submitted to demonstrate that no existing tower, structure or alternative technology can accommodate the applicant's proposed antenna may consist of any of the following:

i. No existing towers or structures are located within the geographic area, which meet ~~applicant's~~ reasonable engineering and personal wireless service related quality requirements. This evidence cannot be merely conclusory and must be supported by propagation maps that include the underlying analysis models, engineering reports speaking to the technical infeasibility, dropped call logs, and other data showing that a new tower is the only means of accommodating the proposed antenna.

ii. Existing towers or structures are not of sufficient height to meet applicant's engineering requirements.

iii. Existing towers or structures do not have sufficient structural strength to support applicant's proposed antenna and related equipment.

iv. The applicant's proposed antenna would cause electromagnetic interference with the antenna on the existing towers or structures, or the antenna on the existing towers or structures would cause interference with the applicant's proposed antenna as certified by an RF engineer.

v. The fees, costs, or contractual provisions required by the owner in order to share an existing tower or structure or to adapt an existing tower or structure for sharing are unreasonable. Costs exceeding new tower development are presumed to be unreasonable.

vi. The applicant demonstrates that there are other limiting factors that render existing towers and structures unsuitable.

vii. The applicant demonstrates that an alternative technology that does not require the use of towers or structures, such as a cable micro cell network using multiple low-powered transmitters/receivers attached to a wire line system, is unsuitable. Costs of alternative technology that exceed new tower or antenna development shall not be presumed to render the technology unsuitable.

~~viii. If the applicant asserts a claim that a proposed facility is necessary to remedy one (1) or more existing significant gaps in an identified wireless carrier's personal wireless services, the Council may require the applicant to provide drive-test generated coverage maps, as opposed to computer-generated coverage maps, for each frequency at which the carrier provides personal wireless services, to show signal strengths in bins of three (3) DBM each, to enable the Council to assess the existence of such significant gaps accurately, and/or whether the carrier possesses adequate coverage within the geographic area which is the subject of the respective application.~~

d. Following approval by the Town Council, the applicant may apply for a building permit through the standard application process. Construction shall not commence prior to approval of the building permit.

4. Environmental Impacts

If, and to the extent that, the Town Council determines a proposed installation bears the potential for a significant adverse impact upon the environment within the meaning of ADEQ and/or the NEPA, then the Council shall be expected to comply with the requirements of ADEQ in determining both:

a. The extent of adverse impacts upon the environment and/or historic properties; and,

b. What mitigation measures the applicant should be required to undertake to minimize the adverse environmental impacts and/or impacts upon historic sites, structure and/or districts.

If a respective applicant fails to obtain a review from the ADEQ and/or NEPA and opinion letters from the ADEQ and the FCC pertaining to its proposed installation prior to a first public hearing before the Town Council for the respective application, then the Town Council may make direct requests to the ADEQ and the FCC for their review of the application. The Town Council may request the FCC's review and input in completing the statutorily-required environmental impact analysis pursuant to ADEQ and NEPA.

In addition, the Town Council shall comply with the statutory requirements of ADEQ to complete an ADEQ review, make determinations of significance, and, where appropriate, require the applicant to complete a draft environmental impact statement and, if additionally appropriate, to thereafter complete a final environmental impact statement and analysis.

So long as the Town Council acts with reasonable diligence in completing its ADEQ and NEPA review, if compliance with the statutory requirements for environmental review requires a period of effort that extends beyond the expiration of the applicable shot clock period, the delays beyond such period shall be deemed reasonable.

5. Historic Site Impacts

The Town Council shall consider the potential adverse impacts of any proposed facility upon any historic site, district, or structure consistent with the Town's historic preservation law requirements and comprehensive plan and ADEQ.

If, and to the extent that, the Town Council determines that a proposed installation bears the potential for a significant adverse impact on a historic site or a historic district within the meaning of ADEQ and/or the NHPA (especially if the historic site at issue is listed upon the National Register of historic places), then the Council shall comply with the requirements of both ADEQ and Town law in determining both:

a. The extent of adverse impacts upon the historic properties, and

b. What mitigation measure might the applicant be required to undertake to minimize the adverse environmental impacts and/or adverse impacts upon historic sites, structures and/or district.

Should a respective applicant fail to obtain a SHPO and/or a Section 106 review under NHPA, and opinion letters from SHPO and the FCC pertaining to its proposed installation prior to a first public hearing before the Town Council for the respective application, then the Town Council shall make direct requests to SHPO and the FCC for their review of the application. They shall request SHPO and the FCC's review and input in completing the statutorily-required environmental/historic impact analysis pursuant to ADEQ and NHPA.

This request shall include, but not be limited to, a request to the FCC for a Section 106 review, as defined in this Chapter, as the Town recognizes each application for a special use permit for the installation of a personal wireless services facility shall constitute "an undertaking" for purposes of compliance with the National Historic Preservation Act.

In addition, the Town Council shall comply with the statutory requirements of ADEQ to complete a SEQ ADEQ RA review, make determinations of significance, and, where appropriate, require the applicant to complete a draft environmental impact statement, and if additionally appropriate, to thereafter complete a final environmental impact statement and analysis.

So long as the Town Council acts with reasonable diligence in completing its ADEQ and NHPA review, if compliance with the statutory requirements for historic preservation review

requires a period of effort that extends beyond the expiration of the applicable shot clock period, the delays beyond such period shall be deemed reasonable.

6. Tribal Site Impacts

The Town Council shall consider the potential adverse impacts of any proposed facility upon any tribal lands associated with the Fort McDowell Yavapai Nation and the Salt River Prima-Maricopa Indian Community near or within the general area of Fountain Hills, Arizona. If, and to the extent that, the Town Council determines that a proposed installation bears the potential for a significant adverse impact on such tribal lands, then the Council shall issue notice to tribal representatives and request tribal review of the application.

~~6~~7. Force Majeure

In the event that the rendering of a final decision upon an application under this Chapter is delayed due to natural and/or unnatural events and/or forces which are not within the control of the Town or the Town Council, such as the unavoidable delays experienced in government processes due to the COVID 19 pandemic, and/or mandatory compliance with any related federal or state government orders issued in relation thereto, such delays shall constitute reasonable delays which shall be recognized as acceptable grounds for extending the period for review and the rendering of final determinations beyond the period allotted under the applicable shot clock.

~~4~~7~~7~~8. In granting a permit, the Town may impose conditions to the extent such conditions are necessary to minimize any adverse effect of the proposed tower on adjoining properties.

Section 17.06 Maintenance and Operation

A. *Removal of Abandoned Antennas and Towers; Bond Required.*

1. Any antenna or tower that is not operated for a continuous period of ninety (90) days shall be ~~considered~~deemed abandoned~~, and~~. Within ninety (90) days of receipt of notice from the Town of Fountain Hills notifying the owner of such abandonment, the owner of such antenna or tower shall completely remove the same and all related equipment and improvements and shall restore all affected areas to a condition compliant with all

applicable laws, which includes without limitation the Code~~within ninety (90) days of receipt of notice from the Town of Fountain Hills notifying the owner of such abandonment~~. Failure to remove an abandoned antenna or tower within said ninety (90) day period shall be grounds to remove the tower or antenna at the owner's expense. The Town shall have the right (but not the obligation) to perform such removal and restoration with or without notice. If there are two (2) or more users of a single tower, then this provision shall not become effective until all users cease using the tower for the prescribed period.

2. Upon receiving a special use permit approval from the Town Council and a building permit, prior to the commencement of installation and/or construction of such facility or any part thereof, the applicant shall file with the Town a bond for a length of no less than three (3) years in an amount equal to or exceeding the estimate of the cost of removal of the facility and all associated structures, fencing, power supply, and other appurtenances connected with the facility. The bond must be provided within thirty (30) days of the approval date and before any installation or construction begins.

Replacement bonds must be provided ninety (90) days prior to the expiration of any previous bond.

At any time the Town has good cause to question the sufficiency of the bond at the end of any three-year (3) period, the owner and/or operator of the facility, upon request by the Town, shall provide an updated estimate and bond in the appropriate amount.

Failure to keep the bonds in effect is cause for the removal of the facility at the owner's expense. Each facility will require a separate bond, regardless of the number of owners or location.

B. *State or Federal Requirements.*

1. Compliance with state and federal requirements. All towers must meet or exceed current standards and regulations of the FAA, the FCC, and any other agency of the state or federal government with the authority to regulate towers and antennas. If such standards and regulations are changed, then the owners of the towers and antennas governed by this chapter shall bring such towers and antennas into compliance with such revised standards and regulations within six (6) months of the effective date of such standards and regulations, unless a different compliance schedule is mandated by the controlling state or

federal agency. Failure to bring towers and antennas into compliance with such revised standards and regulations shall constitute grounds for the removal of the tower or antenna at the owner's expense.

2. Prohibition against illegally excessive emissions and RF testing.

As disclosed on the FCC's public internet website, personal wireless services facilities erected at any height under 200 feet are not required to be registered with the FCC.

Of even greater potential concern to the Town is the fact that the FCC does not enforce the RF radiation limits codified within the CFR by either: (a) testing the actual radiation emissions of wireless Facilities either at the time of their installation or at any time thereafter, or (b) requiring their owners to test them. See relevant excerpts from the FCC's public internet website annexed as Appendix 2.

This means that when wireless Facilities are constructed and operated within the Town, the FCC will have no idea where they are located and no means of determining, much less ensuring, that they are not exposing residents within the Town and/or the general public to Illegally Excessive levels of RF Radiation.

The Town deems it to be of critical importance to the health, safety, and welfare of the Town, its residents, and the public at large that personal wireless service facilities do not expose members of the general public to levels of RF radiation that exceed the limits which have been deemed safe by the FCC, and/or are imposed under CFR. The FCC has recognized that 47 U.S.C. § 332(c)(7)(B)(iv) permits state and local governments, when making decisions on the placement, construction, and modification of personal wireless service facilities, to consider whether such facilities comply with the Commission's regulations concerning RF emissions. In re Human Exposure to Radiofrequency Electromagnetic Fields et al., 34 FCC Rcd 11687, 11739, ¶114 (2019).

In accord with the same, the Town enacts the following RF Radiation testing requirements and provisions set forth herein below.

No wireless telecommunications facility shall at any time be permitted to emit illegally excessive RF Radiation as defined in §17-2 or to produce power densities that exceed the legally permissible limits for electric and magnetic field strength and power density for transmitters, as codified within 47 CFR §1.1310(e)(1), Table 1 Sections (i) and (ii), as made

applicable pursuant to 47 CFR §1.1310(e)(3) unless the operator implements and retains responsibility for ongoing effectiveness of the mitigation actions contained in 47 C.F.R. §1.1307(b)(4).

To ensure continuing compliance with such limits by all owners and/or operators of wireless communication facilities within the Town, all owners, and operators of wireless communication facilities shall submit reports as required by this section.

As set forth hereinbelow, the Town may additionally require, at the owner and/or operator's expense, independent verification of the results of any analysis set forth within any reports submitted to the Town by the owner and/or operator.

If an operator of a personal wireless service facility fails to supply the required reports or fails to correct a violation of the legally permissible limits described hereinabove, following notification that their respective facility is believed to be exceeding such limits, any special use permit or other zoning approval granted by the Town Council or any other body or representative of the Town is subject to modification or revocation by the Town Council following a public hearing.

a. *Certification of Compliance with Applicable RF Radiation Limits.* Within forty-five (45) days of initial operation or a substantial modification of a wireless communication facility, the owner and/or operator of each telecommunications antenna shall submit to the Development Services Director a written certification by a licensed professional engineer, sworn to under penalties of perjury, that the facility's radio frequency emissions comply with the limits codified within 47 CFR §1.1310(e)(1), Table 1 Sections (i) and (ii), as made applicable pursuant to 47 CFR §1.1310(e)(3).

The engineer shall also measure the emissions of the approved wireless facility, including the cumulative impact from other nearby wireless facilities, and determine if such emissions are within the limits described hereinabove.

A report of these measurements and the engineer's findings with respect to compliance with the FCC's maximum permissible exposure (MPE) limits shall be submitted to the Development Services Director.

If the report shows that the facility does not comply with applicable limits, then the owner and/or operator shall cease operation of the facility until the facility is brought

into compliance with such limits. Proof of compliance shall be a certification provided by the engineer who prepared the original report. The Town may require, at the applicant's expense, independent verification of the results of the analysis.

b. *Random RF Radiofrequency Testing.* At the operator's expense, the Town may retain an engineer to conduct random unannounced RF radiation testing of such wireless facilities to ensure the facility's compliance with the limits codified within 47 CFR §1.1310(e)(1) et seq.

The Town may cause such random testing to be conducted as often as the Town may deem appropriate. However, the Town may not require the owner and/or operator to pay for more than one (1) test per facility per calendar year unless such testing reveals that one (1) or more of the owner and/or operator's facilities are exceeding the limits codified within 47 CFR §1.1310(e)(1) et seq., in which case the Town shall be permitted to demand that the wireless facility be brought into compliance with such limits, and to conduct additional tests to determine if, and when, the owner and/or operator thereafter brings the respective wireless facility and/or facilities into compliance.

If the Town at any time finds that there is good cause to believe that a personal wireless service facility and/or one or more of its antennas are emitting RF radiation at levels in excess of the legal limits permitted under 47 CFR §1.1310(e)(1) et seq., then a hearing shall be scheduled before the Town Council at which the owner and/or operator of such facility shall be required to show cause why any and all permits and/or approvals issued by the Town for such facility and/or facilities should not be revoked, and a fine should not be assessed against such owner and/or operator.

Such hearing shall be duly noticed to both the public and the owner and/or operator of the respective facility or facilities at issue. The owner and/or operator shall be afforded not less than two (2) weeks' written notice by first-class mail to its Notice Address.

At such hearing, the burden shall be on the Town to show that, by a preponderance of the evidence, the Facilities emissions exceeded the permissible limits under 47 CFR §1.1310(e)(1) et seq.

In the event that the Town establishes same, the owner and/or operator shall then be required to establish, by clear and convincing evidence, that a malfunction of equipment

caused their failure to comply with the applicable limits through no fault on the part of the owner/operator.

If the owner and/or operator fails to establish same, the Town Council shall have the power to and shall revoke any special use permit, variance, building permit, and/or any other form of zoning-related approval(s) which the Town Council, Board of Adjustment, Town Engineer and/or any other representative of the Town may have then issued to the owner and/or operator, for the respective facility.

In addition, the Town may issue a civil citation of not less than $1,000, nor more than $5,000 for such violation of subparagraph 1. hereinabove, or, in the case of a second offense within less than five (5) years, a minimum fine of $5,000, nor more than $25,000.

In the event that an owner or operator of one or more personal wireless service facilities is found to violate subparagraph 1. hereinabove three or more times within any five (5) year period, then in addition to revoking any zoning approvals for the facilities which were violating the limits codified in 47 CFR §1.1310(e)(1) et seq., the Town Council shall render a determination within which it shall deem the owner/operator prohibited from filing any applications for any new wireless personal services facilities within the Town for a period of five (5) years.

c. *Annual Testing*. The owner or operator of all PWSF shall provide for and conduct an inspection of radio frequency radiation at least once annually by a licensed radio frequency engineer. Three copies of a report shall be provided to the Development Services Department, verifying that the radio frequency radiation is in compliance with FCC Guidelines.

3. *Actions for Noncompliance.* If the Town at any time finds that there is good cause to believe that a wireless communication facility and/or one (1) or more of its antennas are emitting RF radiation at levels in excess of the legal limits permitted under 47 CFR §1.1310(e)(1) et seq., then a hearing shall be scheduled before the Town's Zoning Administrator at which the owner and/or operator of such facility shall be required to show cause why any and all permits and/or approvals issued by the Town for such facility and/or facilities should not be revoked, and a fine should not be assessed against such owner and/or operator.

The owner and/or operator shall be afforded not less than two (2) weeks' written notice of the hearing.

At such hearing, the burden shall be on the Town to show that, by a preponderance of the evidence, the facilities emissions exceeded the permissible limits under 47 CFR §1.1310(e)(1) et seq.

In the event that the Town establishes same, the owner and/or operator shall then be required to establish, by clear and convincing evidence, that a malfunction of equipment caused their failure to comply with the applicable limits through no fault on the part of the owner/operator.

If the owner and/or operator fails to establish same, the Town shall have the power to revoke any permit, building permit, and/or any other form of approval(s) which the Town Council or any other representative of the Town may have then issued to the owner and/or operator, for the respective facility. The Zoning Administrator may revoke an administrative approval. The decision of the Zoning Administrator may be appealed to the Town Manager. If the tower or antenna was approved by the Town Council, revocation will be considered by the Town Council in the same manner as the original approval.

In addition, the Town may issue a civil citation for noncompliance as provided in Section 1-8-3 of the Town Code.

In the event that an owner or operator of one (1) or more wireless communication facility is found to violate subsection (B)(1) of this section three (3) or more times within any five (5) year period, then in addition to revoking any zoning approvals for the facilities which were violating the limits codified in 47 CFR §1.1310(e)(1) et seq., the Town Council shall render a determination within which it shall deem the owner/operator prohibited from filing any applications for any new wireless personal services facilities within the Town for a period of five (5) years.

C. *Building Codes; Safety Standards.* To ensure the structural integrity of towers, the owner of a tower shall ensure that it is maintained in compliance with standards contained in applicable state or local building codes and the applicable standards for towers that are published by the Electronic Industries Association, as amended from time to time. If, upon inspection, the Town of Fountain Hills concludes that a tower fails to comply with such codes and standards and

constitutes a danger to persons or property, then upon notice being provided to the owner of the tower, the owner shall have thirty (30) days to bring such tower into compliance with such standards. Failure to bring such tower into compliance within said thirty (30) days shall constitute grounds for the removal of the tower or antenna at the owner's expense.

D. *Noise.* Wireless facilities and all related equipment must comply with all noise regulations and shall not exceed such regulations, either individually or collectively. Backup generators shall only be operated during power outages and/or for testing and maintenance purposes between the hours of 9:00 a.m. and 4:00 p.m.

E. *Maintenance*. Prior to scheduling a final inspection for construction of a tower and associated equipment, the applicant shall file with the Town a bond in the amount of X to cover the ongoing maintenance of the tower, equipment, and landscaping. The bond amount shall be reviewed and revised every three years thereafter. Should the owner of the tower, equipment, and/or landscaping fail to maintain said facilities consistent with the Town's approval and ordinance requirements, and after notice for correction by the Town, the Town may call and utilize the bonds to perform the needed maintenance activities.

F. Indemnity and liability for damages.

1. The wireless telecommunications facility provider shall defend, indemnify, and hold harmless the Town or any of its boards, commissions, agents, officers, and employees from any claim, action or proceeding against the Town, its boards, commission, agents, officers, or employees to attack, set aside, void, or annul, the approval of the project when such claim or action is brought within the time period provided for in applicable state and/or local statues. The Town shall promptly notify the provider(s) of any such claim, action or proceeding if the Town bears its own attorney's fees and costs, and the Town defends the action in good faith.

2. Wireless telecommunications facility operators shall be strictly liable for interference caused by their facilities with Town communications systems. The operator shall be responsible for costs for determining the source of the interference, all costs associated with eliminating the interference (including but not limited to filtering, installing cavities, installing directional antennas, powering down systems, and engineering analysis), and all costs arising from third party claims against the Town attributable to the interference.

G. *Certificate of Insurance required*. The applicant shall maintain adequate and sufficient liability insurance during the construction period and thereafter, the carrier shall maintain liability insurance ~~meeting the criteria of this section throughout the life of any PWSF erected within the Town of Fountain Hills. Prior to the issuance of any necessary permit, whether special permit or building permit, documentation that liability insurance in the amount of at least $1,000,000 single occurrence, $3,000,000 aggregate has been secured identifying the Town as coinsured shall be submitted to the Development Services Department, such policy shall not include a pollution exclusion. The carrier's maintenance without interruption of liability insurance in like or greater amount with the Town named as coinsured is a continuing condition of any permit or certificate of building compliance.~~ , issued by an insured authorized to do business in the State of Arizona meeting the criteria of this section throughout the life of any PWSF erected within the Town of Fountain Hills, at least as broad as follows:

1. Commercial General Liability Insurance. The permittee shall procure and maintain at its expense or cause its contractor or subcontractor to procure and maintain throughout the term of this permit, commercial General Liability ("CGL") insurance on an "occurrence" basis, with limits not less than $2,000,000 per occurrence per wireless carrier or $4,000,000 per wireless carrier in the aggregate. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project location or the general aggregate limit shall be twice the required occurrence limit. CGL insurance must include coverage for the following: Bodily Injury and Property Damage; Personal Injury/Advertising Injury; Premises/Operations Liability; Products/Completed Operations Liability; Aggregate Limits that Apply per Project; Explosion, Collapse and Underground ("UCX") exclusion deleted; Contractual Liability with respect to the permit; Broad Form Property Damage; and Independent Consultants Coverage. The policy shall contain no endorsements or provisions limiting coverage for (i) contractual liability; (ii) cross liability exclusion for claims or suits by one insured against another; (iii) products/completed operations liability; (iv) bodily injury or damage from RF exposure at levels exceeding the FCC limits; or (v) contain any other exclusion contrary to the conditions in this permit.

5. Environmental Pollution Liability Insurance. The permittee shall procure and maintain at its expense or cause its contractor or subcontractor to procure and maintain throughout the term of this permit, Contractors Pollution Liability Insurance including contractual liability coverage to cover liability and legal expenses arising out of cleanup,

removal, storage, or handling of hazardous or toxic chemicals, materials, substances, or any other pollutants by the permittee or any subcontractor resulting from pollution conditions associated with the personal wireless services facility in an amount not less than $1,000,000 each occurrence combined single limit for bodily injury and property damage.

6. Umbrella Policy. If an umbrella or excess liability insurance policy is used to satisfy the minimum requirements for insurance coverage listed above, the umbrella or excess liability policies shall provide coverage at least as broad as specified for the underlying coverages and covering those insured in the underlying policies. Coverage shall be "pay on behalf," with defense costs payable in addition to policy limits. Permittee shall provide a "follow form" endorsement or schedule of underlying coverage satisfactory to the Town indicating that such coverage is subject to the same terms and conditions as the underlying liability policy.

7. Endorsements. The relevant policy(ies) shall name the Town, its elected/appointed officials, commission members, officers, representatives, agents, volunteers and employees as additional insureds. The permittee shall use its best efforts to provide thirty (30) days' prior notice to the Town of the cancellation or material modification of any applicable insurance policy.

8. Verification of Coverage. Permittee shall furnish the Development Services Department with original certificates and amendatory endorsements or copies of the applicable policy language providing the insurance coverage required herein. All certificates and endorsements are to be received and approved by the Development Services Department before any work commences. However, failure to obtain required documents prior to the work beginning shall not waive the Licensee's obligation to provide them. Permittee shall furnish updated certificates and endorsements to the Town annually. The Town reserves the right to require updated certificates and endorsements or complete, certified copies of all required insurance policies, including the endorsements required herein, at any time.

9. Permittee Has Full Liability: The permittee shall assume full liability for damage or injury caused to any property or person by the personal wireless services facility.

10. Permittee shall provide an executed agreement, pursuant to which Permittee and any related third parties agree to defend, hold harmless and fully indemnify the Town, its officers, employees, agents, attorneys, and volunteers, from (i) any claim, action or proceeding brought against the Town or its officers, employees, agents, or attorneys to attack, set aside, void, or annul any such approval of the Town or (ii) a successful legal action brought against the Town for loss of property value or other harm caused by the placement or operation of a small cell installation. Such indemnification shall include damages, judgments, settlements, penalties, fines, defensive costs or expenses, including, but not limited to, interest, attorneys' fees and expert witness fees, or liability of any kind related to or arising from such claim, action, or proceeding whether incurred by the Permittee, the Town and/or the parties initiating or bringing such proceeding. The agreement shall also include a provision obligating the Permittee to indemnify the Town for all of the Town's costs, fees and damages which the Town incurs in enforcing the indemnification provisions of this Section.

H. ADA Accommodations. The Town seeks to comply with the Americans With Disabilities Act, and shall comply with same in the event that any person who is disabled within the meaning of the Act seeks a reasonable accommodation, to the extent they are entitled to same under the Act.

I. Decommissioning and Reclamation Plan shall include the following information:

1. A plan for disposal of all solid waste, special waste and hazardous waste in accordance with local, state, and federal waste disposal regulations detailing the types and quantities of waste materials and methods of disposal;

2. A description of how and on what schedule stabilization and re-vegetation of the site as deemed necessary to minimize erosion will be accomplished. Permittee should include, to the extent possible, restoration of native vegetation, and pollinator-friendly seed mixtures shall be used to the maximum extent possible in re-vegetation of ground cover;

3. An estimate of costs for the decommissioning of the personal wireless services facility with a detailed description of how the estimated costs were derived, including the date which was the basis for the estimate;

4. A decommissioning plan signed by the party responsible for decommissioning and the landowner (if different) whose minimum requirements meet the standards of this Ordinance. Such plan must be filed in the Town Office prior to the first operation of the personal wireless services facility;

5. An estimate of the total cost of decommissioning value of the equipment and itemization of the estimated major expenses, including the projected costs of measures taken to minimize or prevent adverse effects on the environment during the implementation of the decommissioning plan.

Section 17.07 Nonconforming Uses

A. *Not Expansion of Nonconforming Use.* Towers that are constructed, and antennas that are installed, in accordance with the provisions of this chapter shall not be deemed to constitute the expansion of a nonconforming use or structure.

B. *Pre-existing Towers.* Pre-existing towers shall be allowed to continue their usage as they presently exist. Routine maintenance (including replacement with a new tower of like construction and height) shall be permitted on such pre-existing towers. New construction other than routine maintenance on a pre-existing tower shall comply with the requirements of this chapter.

C. *Rebuilding Damaged or Destroyed Nonconforming Towers or Antennas.* Notwithstanding other provisions of this chapter, bona fide nonconforming towers or antennas that are damaged or destroyed may be rebuilt without having to first obtain a special use permit and without having to meet the separation requirements specified in Section 17.03. The type, height, and location of the tower on site shall be of the same type and intensity as the original facility approval; provided, however, that any destroyed lattice or guyed tower shall be replaced with a monopole structure only. Building permits to rebuild the facility shall comply with the then applicable building codes and shall be obtained within ninety (90) days from the date the facility is damaged or destroyed. If no permit is obtained or if said permit expires, the tower or antenna shall be deemed abandoned as specified in Section 17.06(A).

Section 17.08 Retention of Consultants

A. Use of Consultants

Where deemed reasonably necessary by the Town Council and/or the Town, the Town Council and/or the Town may retain the services of professional consultants to assist the Town in carrying out its duties in review and approval of personal wireless service facilities. Where the Town Council uses the services of private engineers, attorneys, or other consultants for purposes of engineering, scientific, land use planning, environmental, legal, or similar professional reviews of the adequacy or substantive aspects of applications or of issues raised during the course of review of applications for special use permit approvals of personal wireless service facilities, the applicant and landowner, if different, shall be jointly and severally responsible for payment of all the reasonable and necessary costs incurred by the Town for such services. That responsibility shall not exceed the actual cost to the Town of such engineering, legal, or other consulting services.

B. Advance Deposits for Consultant Costs

The Town and/or Town Council may require advance periodic monetary deposits held by the Town on account of the applicant or landowner to secure the reimbursement of the Town's consultant expenses. The Town Council shall establish policies and procedures for the fixing of deposits and the management of payment from them. After the review and approval of itemized invoices by the Development Services Director, or designee, as to the reasonableness and necessity of the consultant charges, the Town may make payments from the deposited monies for engineering, legal, or consultant services. Upon receiving a request by the applicant or landowner, the Town shall supply copies of such invoices to the applicant and/or landowner reasonably in advance of review and approval, appropriately redacted where necessary to shield legally privileged communications between Town officers or employees and the Town's consultant. When it appears that the remaining deposit held for the applicant or landowner by the Town may be insufficient to pay current or anticipated invoices, the Town shall cause the applicant or landowner to deposit additional monies to meet such expenses or anticipated expenses in accordance with policies and procedures established by the Town Council. Consultants shall undertake no review on any matter scheduled before the Town until the initial deposit has been made or requested replenishment of the deposit has been made. No reviewing agency shall be obligated to proceed unless the applicant complies with deposit requirements.

C. Reasonable Limit Upon Consultant Expenses

A consultant expense or part thereof is reasonable in amount if it bears a reasonable relationship to the customary fee charged by engineers, attorneys, or planners within the region for services performed on behalf of applicants or reviewing boards in connection with comparable applications for land use or development.

The Town may also take into account any special conditions for consideration as it may deem relevant, including but not limited to the quality and timeliness of submissions on behalf of the applicant and the cooperation of the applicant and agents during the review process.

A consultant expense or part thereof is necessarily incurred if it was charged by the engineer, attorney or planner, or other consultants for a service that was rendered to assist the Town in: (a) making factual determinations consistent with the goals of protecting or promoting of the health, safety or welfare of the Town or its residents; (b) assessing potential adverse environmental impacts such as those identified within an ADEQ process; (c) accessing potential adverse impacts to historic properties, structures and/or districts, and/or (d) assessing and determining factual issues relevant to Effective Prohibition claims, as addressed herein, enabling the Council to best comply with the letter and intent of the provision of the TCA which is relevant thereto.

D. Audits Upon the Request of an Applicant

Upon request of the applicant or landowner, the Town Council shall review all invoices and determine whether such engineering, legal, and consulting expenses are reasonable in amount and necessarily incurred by the Town in connection with the review and consideration of an application for personal wireless service facility. In the event of such a request, the applicant or landowner shall be entitled to be heard by the Town Council on reasonable advance notice.

E. Liability for Consultant Expenses

For a land-use application to be complete, the applicant shall provide the written consent of all owners of the subject real property, both authorizing the applicant to file and pursue land development proposals and acknowledging potential landowner responsibility, under this section, for engineering, legal, and other consulting fees incurred by the Town. If different from the applicant, the owner(s) of the subject real property shall be jointly and severally responsible for reimbursing the Town for funds expended to compensate services rendered to the Town

under this section by private engineers, attorneys, or other consultants. The applicant and the owner shall remain responsible for reimbursing the Town for its consulting expenses, notwithstanding that the deposit account may be insufficient to cover such expenses. No building permit or other permit shall be issued until reimbursement of costs and expenses determined by the Town to be due. In the event of failure to reimburse the Town for such fees, the following shall apply:

The Town may seek recovery of unreimbursed engineering, legal, and consulting fees by court action in an appropriate jurisdiction, and the defendant(s) shall be responsible for the reasonable and necessary attorney's fees expended by the Town in prosecuting such action.

Alternatively, and at the sole discretion of the Town, a default in reimbursement of such engineering, legal, and consulting fees expended by the Town shall be remedied by charging such sums against the real property that is the subject of the application by adding that charge to and making it a part of the next annual real property tax assessment roll of the Town. Such charges shall be levied and collected simultaneously and in the same manner as Town-assessed taxes and applied in reimbursing the fund from which the costs were defrayed for the engineering, legal, and consulting fees. Prior to charging such assessments, the owners of the real property shall be provided written notice to their last known address of record by certified mail, return receipt requested, of an opportunity to be heard and object before the Town Council to the proposed real property assessment, at a date to be designated in the notice, which shall be no less than 30 days after its mailing.

Chapter 17
Wireless Telecommunications Towers and Antennas

Section 17.01 Purpose, Intent, and Applicability

A. The purpose of this chapter is to establish general guidelines for the siting of wireless communications towers and antennas. The goals of this chapter are to:

1. Protect residential areas and land uses from potential adverse impacts of towers and antennas;

2. Employ the "General Authority" preserved to the Town under 47 U.S.C. § 332(c)(7)(A) to the greatest extent the United States Congress intended while simultaneously complying with each of the substantive and procedural requirements set forth within the subsection 47 U.S.C. § 332(c)(7)(B).

3. Employ the authority reserved under A.R.S. §§ 9-462.01, and 9-596.A to exercise the Town's zoning powers, land use, planning and permitting authority, exercise its police powers, and manage access to the Town's public rights of way.

4. Promote the location of towers in nonresidential areas;

5. Limit the total number of towers throughout the community;

6. Strongly encourage the joint use of new and existing tower sites as a primary option rather than construction of additional single-use towers;

7. Require users of towers and antennas to locate them, to the extent possible, in areas where the adverse impact on the community is minimal;

8. Require users of towers and antennas to configure them in a way that minimizes the adverse visual impact of the towers and antennas through careful design, siting, landscape screening, and camouflaging techniques;

9. Enhance the ability of the providers of telecommunications services to provide such services to the community quickly, effectively, and efficiently;

10. Recognize that technology and laws regarding these facilities have changed, so the Town's regulations need to change accordingly;

11. Consider the public health and safety of communication towers; and

12. Avoid potential damage to adjacent properties from tower failure through engineering and careful siting of tower structures.

13. Maintain the Town's status as a designated International Dark Sky Community and an optimum environment for stargazing,

14. Conserve and enhance the unique natural beauty, irreplaceable natural resources, historical, natural, and man-made character and appearance of Fountain Park, McDowell Mountain Preserve, Pleasantville Park, and views of Red Mountain and Four Peaks.

15. Protect Saguaro cacti as a unique natural resource promoting tourism, contributing to the aesthetic well-being of the community, high property values, high quality of life, unique lifestyles, and providing habitat protection for desert wildlife. Saguaro cacti grow slowly and cannot be replaced by a plant of like character.

16. Protect the quiet small-town suburban, scenic and visual character of the Town.

In furtherance of these goals, Town of Fountain Hills shall give due consideration to the Town of Fountain Hills General Plan, the Town of Fountain Hills Zoning Ordinance, existing land uses, and environmentally sensitive areas in approving sites for the location of towers and antennas.

B. It is the intent of this chapter:

1. That no wireless communication towers or antenna be sited, constructed, reconstructed, installed, materially changed, expanded, or used unless in conformity with this chapter.

2. To achieve a balance between the need to provide wireless services with the health, safety, and general welfare of the residents of Fountain Hills by balancing five (5) simultaneous objectives:

a. Enabling personal wireless service providers to provide adequate personal wireless services throughout the Town so that Town residents can enjoy the benefits of same from any FCC-licensed wireless carrier from which they choose to obtain such services;

b. Minimizing the number of cell towers and/or other personal wireless service facilities needed to provide such coverage;

c. Preventing, to the greatest extent reasonably practical, any unnecessary adverse impacts upon the Town's communities, residential areas, and individual homes; and

d. Complying with each of the substantive and procedural requirements set forth within the subsection 47 U.S.C. § 332(c)(7)(B) for permit applications seeking approvals for the siting, construction and operation of cell towers and/or other personal wireless service facilities.

e. Complying with the Federal Communications Commission's (FCC) legislative rules for communications facilities including those for Radio Frequency human exposure limits in 47 C.F.R. Part 1, Subpart I and those addressing State and Local government regulation of the Placement, Construction, and Modification of Personal Wireless Service Facilities, in 47 C.F.R. Part 1, Subpart U.

This Section is not intended to, nor shall it be interpreted or applied to: (1) prohibit or effectively prohibit any wireless telecommunications service provider's ability to provide reasonable and necessary wireless communications services; (2) prohibit or effectively prohibit any entity's ability to provide reasonable and necessary interstate or intrastate telecommunications service; (3) unreasonably discriminate among providers of functionally equivalent services; (4) deny any request for authorization to place, construct or modify wireless telecommunications service facilities solely on the basis of environmental effects of radio frequency emissions so long as such wireless facilities comply in every instance and regard with all FCC's regulations concerning such emissions; (5) prohibit any eligible facility that the Town may not deny under federal or state law; or (6) otherwise authorize the Town to violate any applicable federal or state law.

C. *Applicability.*

1. *New Towers and Antennas.* All new towers or antennas in the Town of Fountain Hills shall be subject to these regulations. The following exceptions apply:

a. *Amateur Radio Station Operators/Receive Only Antennas.* This chapter shall not govern any tower, or the installation of any antenna, that is under the maximum building height of the zoning district in which such structure is located and which is owned and operated by a federally licensed amateur radio station operator or is used exclusively for receive only operations.

b. *Pre-existing Towers or Antennas.* Legally established pre-existing towers and pre-existing antennas shall not be required to meet the requirements of this chapter, other than the requirements of Sections 17.06(B)(1) and 17.06(C).

c. *AM Array.* For purposes of implementing this chapter, an AM array, consisting of one (1) or more tower units and supporting ground system which functions as one (1) AM broadcasting antenna, shall be considered one (1) tower. Measurements for setbacks and separation distances shall be measured from the outer perimeter of the towers included in the AM array. Additional tower units may be added within the perimeter of the AM array by right.

d. *Small Wireless Facilities.* Wireless communication towers and antenna meeting the definition of small wireless facilities as contained in A.R.S. 9-591 are subject to the requirements of Article 16-2, Small Wireless Facilities, of the Town Code.

e. *Mobile or Temporary Towers.* Mobile wireless facilities, when placed on site for seven (7) consecutive days or less, provided any necessary building permit or encroachment permit is obtained.

f. *Utility Service Antennas in the Right-of-Way.* Utility service antennas as defined in this chapter placed in the public right-of-way are subject to the requirements of Article 16-3, Utility Service Antenna, of the Town Code. (24-08, Amended, 09/04/2024, Deleted and replaced)

g. Over-the-Air-Reception Devices ("OTARD") antennas as defined by 47 C.F.R. § 1.4000(a).

2. *Existing Towers and Antennas*. Any existing towers which are modified, upgraded, or changed in any manner shall be subject to the provisions of this ordinance as applicable. All

existing towers and antennas shall be subject to the maintenance and operations requirements in Sec. 17.06.

Section 17.02 Definitions

For the purposes of this article, and where not inconsistent with the context of a particular section, the defined terms, phrases, words, abbreviations, and their derivations shall have the meanings provided in this section. When not inconsistent with the context, words in the present tense include the future tense, words used in the plural number include words in the singular number, and words in the singular number include the plural number. The word "shall" is always mandatory and not merely directory. The definitions set forth herein shall supersede any definitions set forth within the Town Code and Zoning Ordinance, and the definitions set forth herein below shall control and apply to Chapter 17 of the Zoning Ordinance and all subparagraphs herein.

"Accessory facility or accessory structure" means a facility or structure serving or being used in conjunction with a personal wireless services facility or complex and located on the same property or lot as the personal wireless services facility or complex or an immediately adjacent lot, including, but not limited to utility or transmission equipment storage sheds or cabinets.

"ACHP" means the Federal Advisory Council on Historic Preservation.

ADA means American Disabilities Act.

"ADEQ" means the Arizona Department of Environmental Quality.

"Adequate coverage" means, as determined by the Town Council, that a specific wireless carrier's personal wireless service coverage is such that the vast majority of its customers' equipment can successfully ~~use~~ connect to the carrier's radio access network and achieve a received signal strength of -110 dBm or better and deliver a -90 dBm or better signal to the base station receiver (uplink) with a signal to noise ratio (SINR) of 3 dB or higher the vast majority of the time, in the vast majority of the geographic locations within the Town, that the Voice Drop Call Rate, e.g. the percentage ratio of dropped voice calls to total call attempts or successful call setups remains at or below 3%. A "gap" can exist when there is a lack of coverage or when coverage exists but quality is below the above metrics. The Town will assess

whether a gap in a carrier's personal wireless services are significant, based upon such factors including, but not limited to, lack of significant physical size of the gap, whether the gap is located upon a lightly traveled or lightly occupied area, whether only a small number of customers are affected by the gap, and/or whether or not the carrier's customers are affected for only limited periods of time. A wireless carrier's coverage shall not be deemed inadequate simply because the frequency or frequencies at which its customers are using its services are not the most preferred frequency of the wireless carrier.

For claimed capacity or quality shortfalls in an area that has coverage, the applicant must demonstrate through independently-verifiable data and analysis, including network generated recordings based on user equipment reports that users are consistently experiencing dropped voice calls (in contrast to dropped sessions involving non-voice communications) at an unacceptable level during peak periods, or user devices are consistently denied access to the network due to lack of overall capacity at peak periods.

If the applicant relies on signal strength data (whether network recorded or through drive tests) to demonstrate a lack of coverage or inadequate quality/capacity the applicant must disclose all underlying data, its thresholds for acceptable quality in such fashion that all claims and conclusions are independently verifiable.

The Town strongly encourages all applicants to use methods consistent with the FCC rules governing provider reports and mapping data in 47 C.F.R. Part 1, Subpart V (§§ 1.7000 – 1.7010).

"Alternative tower structure" means man-made trees, clock towers, bell steeples, light poles and similar alternative-design mounting structures that camouflage or conceal the presence of antennas or towers.

"Adjacent properties or properties adjacent" shall mean (i) those lots or parcels of land that abut another lot or parcel of land or public right-of-way that is contiguous to a wireless facility site or proposed site and (ii) the lots or parcels of land or public right-of-way that would be contiguous to lots or parcels or public rights-of-way but for an intervening local or collector roadway.

"Aesthetic or aesthetics" refers to subjective or objective determinations related to whether and if so, how well a facility will fit within the character of the area where the facility is proposed. This requires a broad range of factors including but not limited to visual effects and impact on

property values. The Town will consider aesthetics for all applications and, where not prohibited by federal or state law, reserves the ability to impose careful placement conditions or restrictions.

“Antenna” means an apparatus designed for the purpose of emitting radiofrequency (RF) radiation, to be operated or operating from a fixed location pursuant to FCC authorization, for the provision of personal wireless service and any commingled information services. This definition does not apply to antennas designed for amateur radio use or satellite dishes for residential or household purposes.

“Antenna equipment” means equipment, switches, wiring, cabling, power sources, shelters or cabinets associated with an Antenna, located at the same fixed location as the Antenna, and, when Co-located on a PWSF Structure, is mounted or installed at the same time as such Antenna.

“Antenna facility” means Antenna and associated Antenna Equipment.

"Applicant" means any individual, corporation, limited liability company, general partnership, limited partnership, estate, trust, joint-stock company, association of two or more persons having a joint common interest, or any other entity submitting an application for a wireless communication facility permit, site plan approval, building permit, and/or any other related approval, for the installation, operation and/or maintaining of one or more wireless communication facilities.

"Application" shall mean all necessary and required documentation, information, and evidence that an applicant must submit to receive a wireless communications facility permit, building permit, or other Town approval for personal wireless service facilities from the Town.

“Backhaul network” means the lines that connect a provider’s towers/cell sites to one (1) or more cellular telephone switching offices, and/or long distance providers, or the public switched telephone network.

“Balloon test” means the raising of a balloon (or placement of a “crank up” tower, crane or temporary structure) equal to the height of a proposed personal wireless services facility tower for a period of 4 hours on a pre-determined date and time prior to approval of a wireless facility permit application to assess the visual impact of a proposed tower.

“Base station” means for purposes of eligible facilities requests the definition in the FCC’s regulations at 47 CFR § 1.6100 shall apply. A structure or equipment at a fixed location that enables FCC-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower or any equipment associated with a tower.

“Board of Adjustment” means the Board of Adjustment of the Town of Fountain Hills, established pursuant to Sec. 1.07 of the Zoning Ordinance with membership, powers, duties, and responsibilities as set forth in Article 2A-2 of the Town Code.

Carriers. See Wireless Carriers.

“Cell tower” means a free-standing, guy-wired, or otherwise supported pole, tower, or other structure designed to support or employed to support equipment and/or antennas used to provide personal wireless services, including, but not limited to, a pole, monopole, monopine, slim stick, lattice tower or other types of standing structures.

“CEQ” means the Council on Environmental Quality, as established under NEPA.

"Collocate, colocate" or "collocation, colocation" can have different meanings depending on context.

1. When and where A.R.S. §§ 9-951 — 9-600 apply, the definition in A.R.S. §§ 9-951.8 shall also apply. That definition currently states:

"Collocate" or "collocation" means to install, mount, maintain, modify, operate or replace wireless facilities on, within or adjacent to a wireless support structure or utility pole.

2. Where and when the FCC’s general rules for placement, construction and modification of personal wireless facilities apply, the definition in 47 C.F.R. § 1.6002(g) shall also apply. That definition currently states:

Collocation, consistent with § 1.1320(d) and the Nationwide Programmatic Agreement (NPA) for the Collocation of Wireless Antennas, appendix B of this part, section I.B, means—

(1) Mounting or installing an antenna facility on a pre-existing structure; and/or

(2) Modifying a structure for the purpose of mounting or installing an antenna facility on that structure.

(3) The definition of "collocation" in § 1.6100(b)(2) applies to the term as used in that section.

3. Where and when the FCC's rules for wireless facility modifications apply, the definition in 47 C.F.R. § 1.6100(b)(2) shall also apply. That definition currently states:

(2) Collocation. The mounting or installation of transmission equipment on an eligible support structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes.

"Complete application, completed application" means an application that contains all the necessary and required information, records, evidence, reports, and/or data necessary to enable an informed decision to be made with respect to an application. Where any information is provided pursuant to the terms of this Chapter and the Development Services Director, Town Engineer or the Town's expert or consultant, or the Council determines, based upon information provided, that any additional, further, or clarifying information is needed as to one or more aspects, then the application will be deemed incomplete until that further or clarifying information is provided to the satisfaction of the Development Services Director, Town Engineer, Town Council or the Town's expert or consultant of the Council.

"Complex" means the entire site or facility, including all structures and equipment, located at the site.

"Council or Town Council" means the Town Council of the Town of Fountain Hills.

"DBM" (dBm) stands for decibel milliwatts, which is a concrete measurement of the wireless signal strength of wireless networks. It expresses power relative to 1 milliwatt (mW) on a logarithmic scale. Emissions are measured using positive whole or fractional numbers. Received signal strengths are typically recorded in negative numbers because they are usually weaker than 1 milliwatt, and can range from approximately -30 dBm to -110 dBm. The closer the number is to 0, the stronger the cell signal. FCC, HHS and OSHA regulate safe exposure thresholds but transmitter power (in dBm) is crucial to determining exposure, as it is the starting point for calculating current exposure limits.

"Deployment" means the placement, construction, or substantial modification of a personal wireless service facility.

"Development Services Director" (or "Director): T" means the person appointed by the Town Manager to be the Development Services Director. If there is no such person designated by the Town Manager, the Town Manager is the Development Services Director.

"Distributed antenna system, DAS" means a network of spatially separated antenna nodes connected to a common source via a transport medium that provides personal wireless service within a geographic area.

"Effective prohibition" means a finding by the Town Council that if an application seeking approval for a specific new Personal Wireless Service Facility at a specific location, and a specific height, were to be denied, such denial would either: (a) prevent an identified Wireless Carrier from providing personal wireless services within a specific geographic area, or areas, within the Town, or (b) would prevent a specific Wireless Carrier from constructing a sufficient number of such facilities necessary to enable it to provide Personal Wireless Services within the Town.

An effective prohibition shall not be found to exist if a Wireless Carrier has Adequate Coverage in a specified geographic area , such that its end-use customers can use their cellular telephones to connect to landlines using the Carrier's Personal Wireless Services; however, the frequencies are not the "most preferred" frequencies of the Carrier.

An effective prohibition shall also not be found to exist if an applicant fails to establish before the Town Council that any existing geographic gap or capacity deficiency in the specific Wireless Carrier's coverage cannot be remedied through a less intrusive means than what is being proposed, including, but not limited to, potential installations on alternative less intrusive sites, a shorter tower or facility, the incorporation of a more stealthy design, etc.

A finding of Effective Prohibition, or lack thereof, shall be based upon an applicant's submission of sufficient probative, relevant, and sufficiently reliable evidence and the appropriate weight the Town Council deems appropriate to afford.

"Eleventh hour submissions" means an applicant's submission of new and/or additional materials in support of an application less than five (5) business days before the expiration of an applicable shot clock or at an otherwise unreasonably short period of time before the expiration of the shot clock, making it impracticable for the Town Council to adequately review

and consider such submissions due to their complexity, volume, or other factors, before the expiration of the shot clock.

“Eligible facilities request” means a request that meets the requirements in 47 CFR § 1.6100 for modification of an existing Tower or Base Station that does not substantially change the physical dimensions of such Tower or Base Station and involving:

(a) Co-location of new transmission equipment,

(b) Removal of transmission equipment, or

(c) Replacement of transmission equipment.

“Enure” means to operate or take effect. To serve to a person or party's use, benefit, or advantage.

“EPA” means the United States Environmental Protection Agency.

“Existing structure” means light poles, power poles, chimneys, billboards, and other similar structures, which are placed, within the Town at the time of adoption of this chapter, except existing buildings.

“FAA” means the Federal Aviation Administration or its duly designated and authorized successor agency.

“Facility” means a set of wireless transmitting and/or receiving equipment, including any associated electronics and electronics shelter or cabinet and generator.

“FCC” means the Federal Communications Commission.

“General population/uncontrolled exposure limits” means the applicable radiofrequency radiation exposure limits set forth within 47 CFR §1.1310(e)(1), Table 1 Section (ii), made applicable pursuant to 47 CFR §1.1310(e)(3).

“HHS” means U.S. Department of Health and Human Services or its constituent agencies, including FDA Food and Drug Administration, charged with review and compliance, meeting or exceeding requirements of the RF-emitting consumer devices (e.g., electronic products such as cell phones) for health impacts.

"Height" means, when referring to a tower, personal wireless service facility, or personal wireless service facility structure, the height shall mean the distance measured from the pre-existing grade level to the highest point on the tower, facility, or structure, including, but not limited to, any accessory, fitting, fitment, extension, addition, add-on, antenna, whip antenna, lightning rod or other types of lightning-protection devices attached to the top of the structure.

"Historic Structure" means any structure that is either on the National Register of Historic Places or is eligible for inclusion in the national register, irrespective of whether or not an application for inclusion onto the national register has been filed or not filed.

"Illegally excessive RF radiation or illegally excessive radiation" means RF radiation emissions at levels that exceed the legally permissible limits set forth within 47 CFR §1.1310(e)(1), Table 1 Sections (i) and (ii), as made applicable pursuant to 47 CFR §1.1310(e)(3).

"In-kind call testing" means testing designed to measure the gap in Personal Wireless Service coverage asserted by an applicant. In-Kind Call Testing for a claimed gap in Personal Wireless Services in buildings means call testing performed in buildings to establish the existence or absence of such a gap, unless the applicant provides an affidavit sworn under penalties of perjury demonstrating good faith but unsuccessful attempts to secure access to buildings to conduct such testing. In-Kind Call Testing for a claimed gap in Personal Wireless Services in vehicles or in the open air means call testing performed in vehicles or in the open to establish the existence or absence of such a gap.

"In-kind replacement" means the replacement of a malfunctioning component(s) with a properly functioning component of substantially the same weight, dimensions, and outward appearance.

"Least intrusive" means the location and design of a personal wireless service facility that would remedy a significant gap in Personal Wireless Service coverage and (1) does the least disservice to the objectives stated in § 270-219A(2), and (2) deviates as little as possible from (a) the preferential order of location in subsection K (Priority of siting locations) and (b) applicable design standards in subsection L.

"Macrocell" means a cellular base station that typically sends and receives radio signals from large towers and antennas. These include traditionally recognized cell towers, typically ranging from 50 to 199 feet in height.

"Maintenance or routine maintenance" means plumbing, electrical or mechanical work that may require a building permit but that does not constitute a modification to the personal wireless service facility. It is work necessary to assure that a wireless facility and/or telecommunications structure exists and operates reliably and in a safe manner, presents no threat to persons or property, and remains compliant with the provisions of this chapter and FCC requirements.

"Monopole" means a wireless support structure that is not more than forty inches in diameter at the ground level and that has all of the wireless facilities mounted on the pole or contained inside of the pole. Monopoles are typically unguyed.

"Necessary, or necessity, or need" means what is technologically required for the equipment to function as designed by the manufacturer and anything less will result in prohibiting the provision of service as intended and described in the narrative of the application. "Necessary" or "need" does not mean what may be desired, preferred, or the most cost-efficient approach and is not related to an applicant's specific chosen design standards or unspecified "coverage objectives." Any situation involving a choice between or among alternatives or options is not a need or a necessity.

"NEPA" means the National Environmental Policy Act, 42 U.S.C. §4321, et seq.

"NHPA" means the National Historic Preservation Act, 54 U.S.C. 300101 et seq, and 36 CFR Part 800, et seq.

"Node, DAS node" means a fixed antenna and related equipment installation that operates as part of a system of spatially separated antennas, all of which are connected through a medium through which they work collectively to provide personal wireless services, as opposed to other types of personal wireless facilities, such as macrocells, which operate independently.

"Node" means a fixed antenna and antenna equipment installation that operates as part of a system of spatially separated Antennas, all of which are connected through a medium through which they work collectively to provide personal wireless services using hand-off capabilities. A 4G (LTE) node is referred to as an ENode B, and a 5G node is referred to as a GNode B. Some sites incorporate both 4G and 5G. Some 5G capable sites still rely on a 4G network core.

"Notice address" means an address, which is required to be provided by an applicant at the time it submits an application, at which the Town, Town Council, and/or Development Services

Director or Town Engineer designee can mail notice, and the mailing of any notice to such address by first-class mail shall constitute sufficient notice to any and all applicants, co-applicants, and/or their attorneys, to satisfy any notice requirements under this Chapter, as well as any notice requirements of any other local, state and/or federal law.

“Notice of incompleteness, notice of incomplete application” means a written notice, sent by electronic mail , to an applicant seeking approval for the installation of a PWSF, wherein the sender advises the applicant that its application is either incomplete, the wrong type of application, or is otherwise defective, and setting for the reason or reasons why the application is incomplete and/or defective.

“Notice of effective prohibition conditions” means a written notice, which is required to be provided to the Town at the time of the filing of any application by all applicants seeking any approval, of any type, for the siting, installation, and/or construction of a PWSF, wherein the respective applicant asserts, claims or intends to assert or claim, that a denial of their respective application, by any agent, employee, board or body of the Town, would constitute an “effective prohibition ” within the meaning of the TCA, and concomitantly, that a denial of their respective application or request would violate Section 47 U.S.C. §332(c)(7)(B)(i)(II) of the TCA.

“Occupational/controlled exposure limits” means the applicable radiofrequency radiation exposure limits set forth within 47 CFR §1.1310(e)(1), Table 1 Section (i), made applicable pursuant to 47 CFR §1.1310(e)(2).

"Permit" means written permission required by an authority to install, mount, maintain, modify, operate or replace a utility pole or monopole, to collocate a wireless facility on a utility pole or wireless support structure or to collocate wireless facilities on a monopole.

“Permittee” means a holder of a Personal Wireless Service Facility Permit.

“Personal wireless service/personal wireless services” means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services, within the meaning of 47 U.S.C. §332(c)(7)(c)(i), and as defined therein.

“Personal wireless service facility, personal wireless services facility or PWSF” means a facility or facilities used for the provision of personal wireless services, within the meaning of 47 U.S.C. §332(c)(7)(c)(ii). It means a specific location at which a structure that is designed or intended to be used to house or accommodate antennas or other transmitting or receiving equipment is

located. This includes, without limitation, towers of all types and all kinds of support structures, including but not limited to buildings, church steeples, silos, water towers, signs, utility poles, or any other structure that is used or is proposed to be used as a telecommunications structure for the placement, installation and/or attachment of antennas or the functional equivalent of such. It expressly includes all related facilities and equipment such as cabling, radios and other electronic equipment, equipment shelters and enclosures, cabinets, and other structures enabling the complex to provide personal wireless services.

“Pre-existing towers and pre-existing antennas” means any tower or antenna for which a building permit has been properly issued prior to the effective date of the ordinance codified in this chapter, including permitted towers or antennas that have not yet been constructed so long as such approval is current and not expired.

"Private easement" means an easement or other real property right that is only for the benefit of the grantor and grantee and the grantor's or grantee's successors and assigns.

“Probative evidence” means evidence which tends to prove facts, and the more a piece of evidence or testimony proves a fact, the greater its probative value, as shall be determined by the Town Council or other decision making authority, as the finder-of-fact in determining whether to grant or deny applications under this provision of the Town Code.

“Repairs” means the replacement or repair of any components of a wireless facility or complex where the replacement is substantially identical to the component or components being replaced, or for any matters that involve the normal repair and maintenance of a wireless facility or complex without the addition, removal, or change of any of the physical or visually discernible components or aspects of a wireless facility or complex that will impose new visible intrusions of the facility or complex as originally permitted.

“RF” means radiofrequency.

“RF radiation” means radiofrequency radiation. That being electromagnetic radiation, which is a combination of electric and magnetic fields that move through space as waves, and can include both Non-Ionizing radiation and Ionizing radiation.

“School” means a public, charter, or private educational institution providing instruction for elementary and secondary grades as defined in A.R.S. § 15-101 and includes the real property and facilities used for such educational purpose.

"School property" means any parcel containing a public, charter, or private educational institution providing instruction for elementary and secondary grades as defined in A.R.S. § 15-101 and includes associated playgrounds, athletic fields, administrative buildings, parking areas, and other school-related facilities.

"Section 106 Review" means a review under Section 106 of the National Historic Preservation Act.

"Setback" means the distance between (a) any portion of a personal wireless facility and/or complex, including but not limited to any and all accessory facilities and/or structures, and (b) the exterior line of any parcel of real property or part thereof which is owned by, or leased by, an applicant seeking to construct or install a personal wireless facility upon such real property or portion thereof. In the event that an applicant leases only a portion of real property owned by a landlord, the setback shall be measured from the facility to the line of that portion of the real property that is actually leased by the applicant, as opposed to the exterior lot line of the non-leased portion of the property owned by the landlord.

"Shot clock, Arizona" means the statutory timeframes within which the Town must review a wireless application for completeness of an application for wireless facilities in right-of-way pursuant to A.R.S. § 9-594.C.2 and act on a wireless application before it is otherwise deemed approved pursuant to A.R.S. § 9-594.C.2. For deemed approved purposes, the Arizona shot clock begins on the date when the Town determines the application is properly completed. For applications involving wireless facilities not in right-of-way the FCC shot clock will apply.

Shot clock, FCC: the presumptively reasonable time frame within which the Town must act on a wireless application, as defined by the FCC, shown below subject to amendment from the FCC. The shot clock begins when the applicant takes the first procedural step that the Town requires.

a. Aggregate of 60 days:

1) Standby emergency generators at previously permitted macro cell tower sites.

2) Collocation of small wireless facilities at existing small wireless facility sites.

3) Eligible Facilities Requests.

b. Aggregate of 90 days:

1) New small wireless facilities.

2) Collocation applications for additions to existing communications facilities not defined as an eligible facilities request.

c. Aggregate of 150 days:

1) All other applications, such as development of a new communication tower or facility.

“SHPO” means the Arizona State Historic Preservation Office.

“Site developer or site developers” means individuals and/or entities engaged in the business of constructing wireless facilities and wireless facility infrastructure and leasing space and/or capacity upon, or use of, their facilities and/or infrastructure to wireless carriers. Unlike wireless carriers, site developers generally do not provide personal wireless services to end-use consumers.

“Small cell” means a fixed cellular base station that sends and receives radio signals and is typically mounted upon poles or support structures at substantially lower elevations than macrocell facilities.

"Small wireless facility" can have different meanings depending on context.

1. When and where A.R.S §§ 9-591 – 9-599 applies, the definition in A.R.S §§ 9-591.19 shall also apply. That definition means a wireless facility that meets both of the following qualifications:

(a) All antennas are located inside an enclosure of not more than six cubic feet in volume or, in the case of an antenna that has exposed elements, the antenna and all of the antenna's exposed elements could fit within an imaginary enclosure of not more than six cubic feet in volume.

(b) All other wireless equipment associated with the facility is cumulatively not more than twenty-eight cubic feet in volume, or fifty cubic feet in volume if the equipment was ground mounted before August 9, 2017. The following types of associated ancillary equipment are not included in the calculation of equipment volume pursuant to this subdivision:

() An electric meter.

() Concealment elements.

() A telecommunications demarcation box.

() Grounding equipment.

() A power transfer switch.

() A cutoff switch.

() Vertical cable runs for the connection of power and other services

2. Where and when the FCC's general rules for placement, construction and modification of personal wireless service facilities apply, the definition in 47 CFR §1.6002(l) shall apply. That definition states as follows:

(a) Small wireless facilities are facilities that meet each of the following conditions:

(i) The facilities—

. Are mounted on structures 50 feet or less in height including their antennas as defined in § 1.1320(d); or

. Are mounted on structures no more than 10 percent taller than other adjacent structures; or

. Do not extend existing structures on which they are located to a height of more than 50 feet or by more than 10 percent, whichever is greater;

(ii) Each antenna associated with the deployment, excluding associated antenna equipment (as defined in the definition of "antenna" in § 1.1320(d)), is no more than three cubic feet in volume;

(iii) All other wireless equipment associated with the structure, including the wireless equipment associated with the antenna and any pre-existing associated equipment on the structure, is no more than 28 cubic feet in volume;

(iv) The facilities do not require antenna structure registration under part 17 of this chapter;

(v) The facilities are not located on Tribal lands, as defined under 36 CFR 800.16(x); and

(vi) The facilities do not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in § 1.1307(b).

"Special taxing district" means a special district formed pursuant to title ARS 48, chapter 11, 12, 17, 18, 19, 20 or 22.

“Special Use Permit” means the official document or permit granted by the Town Council pursuant to which an applicant is allowed to file for and obtain a building permit to construct and use a personal wireless services facility, personal wireless service equipment, and/or any associated structures and/or equipment which are used to house, or be a part of, any such facility or complex, or to be used to provide personal wireless services.

“State” means the State of Arizona.

“Structure” means a pole, tower, base station, or other building, physical support of any form used for, or to be used for, the provision of personal wireless service.

“Substantial evidence” means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. It means less than a preponderance but more than a scintilla of evidence.

“TCA” means the Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996), codified at various provisions of Title 47 U.S.C.

“Tolling or tolled” means the pausing of the running of the time period permitted under the applicable shot clock for the respective type of application for a personal wireless services facility. Where a shot clock is tolled because an application has been deemed incomplete and timely notice of incompleteness was mailed to the applicant, the submission of additional materials by the applicant to complete the application will end the tolling, thus causing the shot clock period to resume running, as opposed to causing the shot clock to begin running anew.

“Tower” means a mast, pole, monopole, slim stick, guyed tower, lattice tower, freestanding tower, or other structure designed to support or employed to support antennas and other equipment, including but not limited to dishes, transceivers and arrays used to provide personal wireless services and wireless communications services. A ground- or building-mounted mast greater than ten feet tall and six inches in diameter supporting one or more antennas, dishes, arrays, etc. shall be considered a communications tower.

“Town” means the Town of Fountain Hills.

“Town code” means the Town Code of the Town of Fountain Hills.

"Undertaking" means any application seeking Town approval for the installation of a personal wireless services facility licensed under the authority of the FCC shall constitute an undertaking within the meaning of NEPA, in accord with 42 CFR §137.289 and 36 CFR §800.16.

"Utility" means Arizona (under ARS § 40-360.51 (5)): A public utility includes corporations or persons engaged in furnishing water, gas, electricity, telephone service, or sewage disposal to the public for compensation.

"Utility service antennas" means antenna placed on or near utility boxes, poles, switches, storage tanks, etc., and used by a utility provider to facilitate the operation of the utility system.

"Wireless carriers or carrier" means companies that provide Personal Wireless Services to end-use consumers.

"Wireless communication" means the transmission of voice or data without cable or wires.

"Wireless communication facility" means wireless communication facilities including, but not limited to, facilities that transmit and/or receive electromagnetic signals for cellular radio telephone service, personal communications services, enhanced specialized mobile services, paging systems, and related technologies. Such facilities also include antennas, microwave dishes, parabolic antennas, and all other types of equipment used in the transmission or reception of such signals; telecommunication towers or similar structures supporting said equipment; associated equipment cabinets and/or buildings; and all other accessory development used for the provision of personal wireless services. These facilities do not include radio and television broadcast towers and government-operated public safety networks.

"Zoning ordinance" means the Zoning Ordinance of the Town of Fountain Hills, as codified in Chapter 1, Sec. 1.01 of the Zoning Ordinance.

Section 17.03 Requirements

A. *General Requirements.*

1. *Principal or Accessory Use.* Antennas and towers may be considered either principal or accessory uses. A different existing use of an existing structure on the same lot shall not preclude the installation of an antenna or tower on such lot.

2. *Lot Size.* For purposes of determining whether the installation of a tower or antenna complies with district development regulations, including but not limited to setback requirements, lot coverage requirements, and other such requirements, the dimensions of the entire lot shall control, even though the antennas or towers may be located on leased parcels within such lot.

3. *Aesthetics.* Towers and antennas shall meet the following requirements:

a. Towers shall, subject to any applicable standards of the FAA, be painted a neutral color so as to reduce visual obtrusiveness.

b. At a tower site, the design of the buildings and related structures shall, to the extent possible, use materials, colors, textures, screening, and landscaping that will blend them into the natural setting and surrounding buildings.

c. If an antenna is installed on a structure other than a tower, the antenna and supporting electrical and mechanical equipment must be of a neutral color that is identical to, or closely compatible with, the color of the supporting structure so as to make the antenna and related equipment as visually unobtrusive as possible.

d. The choice of design for installing a new wireless communication facility or the substantial modification of an existing wireless communication facility shall be chosen to minimize the potential adverse impacts that the new or expanded facility may, or is likely to, inflict upon nearby properties. Concealment elements such as mono-palms or flagpoles should be utilized to camouflage the pole and antennas.

e. *Accessory Structures.* Unless approved by the Town Council, all equipment associated with a wireless communication tower is to be located below grade in a vault. If above grade accessory structures are approved by the Town Council, they shall comply with the following requirements.

i. Accessory structures shall maximize the use of building materials, colors, and textures designed to blend with the natural surroundings. The use of specified concealment elements for communications towers may be required by the Council to blend the communications tower and/or its accessory structures further into the natural surroundings using specified concealment elements.

ii. Accessory structures shall be designed to be architecturally similar, compatible with each other, and shall be no more than 12 feet high. The buildings shall be used only for housing equipment related to the particular site. Whenever possible, the buildings shall be joined or clustered so as to appear as one (1) building.

iii. No portion of any telecommunications tower or accessory structure shall be used for a sign or other advertising purpose, including but not limited to the company name, phone numbers, banners, and streamers, except the following. A sign of no greater than 2 square feet indicating the name of the facility owner(s) and a twenty-four (24) hour emergency telephone shall be posted adjacent to any entry gate. In addition, "no trespassing" or other warning signs may be posted on the fence. All signs shall conform to the sign requirements of the Town.

f. Towers must be placed to minimize visual impacts. Applicants shall place towers on the side slope of the terrain so that, as much as possible, the top of the tower does not protrude over the ridgeline, as seen from public ways.

g. *Existing Vegetation.* Existing vegetation shall be preserved to the maximum extent possible. No cutting of trees shall take place on a site connected with an application made under this chapter prior to the approval of the application.

h. *Screening.*

i. Tree plantings may be required to screen portions of the telecommunications tower and accessory structures from nearby residential property as well as from public sites known to include important views or vistas. The standard buffer shall consist of a landscaped strip at least 4 feet wide outside the perimeter of the compound. Additional palm trees may be required to accompany towers which use a palm tree stealth design.

ii. Where a site adjoins a residential property or public property, including streets, screening suitable in type, size and quantity shall be required by the Town Council.

iii. The applicant shall demonstrate to the approving board that adequate measures have been taken to screen and abate noise emanating from on-site equipment, including but not limited to heating and ventilating units, air conditioners, and emergency power generators. Telecommunications towers shall

comply with all applicable sections of this chapter as it pertains to noise control and abatement.

i. *Utility Services Antennas.*

i. If placed on another utility structure such as a water tower, the antenna shall be painted to blend with the building or equipment it is placed on.

ii. If a separate tower structure is used, the design shall comply with the provisions in this section.

4. *Lighting.* Towers shall not be artificially lighted, unless required by the FAA or other applicable authority. If lighting is required, the lighting alternatives and design chosen must cause the least disturbance to the surrounding views and, to the degree possible while complying with FAA requirements, meet the standards set in Zoning Ordinance Chapter 8, Outdoor Lighting Control.

5. *Measurement.* For purposes of measurement, tower setbacks and separation distances shall be calculated and applied to facilities located in the Town of Fountain Hills irrespective of municipal and county jurisdictional boundaries.

6. *Not Essential Services.* Towers and antennas shall be regulated and permitted pursuant to this chapter and shall not be regulated or permitted as essential services, public utilities, or private utilities.

7. *Franchises.* Owners and/or operators of towers or antennas shall certify that all franchises required by law for the construction and/or operation of a wireless communication system in the Town of Fountain Hills have been obtained and shall file a copy of all required franchises with the Community Development Director.

8. *Signs.* No signs other than those required by law shall be allowed on an antenna or tower.

9. *Co-location and Multiple Antenna/Tower Plan.* The Town of Fountain Hills encourages tower and antenna users to submit a single application for approval of multiple towers and/or antenna sites and to submit applications, which utilize co-location with an existing wireless telecommunications provider. Applications for approval of multiple sites or for co-location with an existing provider shall be given priority in the review process.

10. *Security fencing.* PWSF shall be enclosed by security fencing not less than 6 feet in height and no more than 8 feet in height, shall be constructed of a block or masonry, and shall be equipped with an appropriate anti-climbing device; provided, however, that the Town Council may waive such requirements, as it deems appropriate.

11. *Noise.* Submission of applications for towers and associated equipment placed above grade, including backup generators or power supplies, shall include noise and acoustical information, prepared by a qualified firm or individual, for the base transceiver station(s), equipment buildings, and associated equipment such as air conditioning units and backup generators. The Town may require the applicant to incorporate appropriate noise baffling materials and/or strategies to avoid any ambient noise from equipment reasonably likely to exceed the applicable noise regulations contained in Section 11-1-7 of the Town Code.

12. Any information of an engineering nature that the applicant submits, whether civil, mechanical, or electrical, shall be certified by an Arizona licensed professional engineer.

13. Application approval issued under this chapter shall be conditioned upon verification by the Town Engineer or designee that such tower structure is structurally sound. Such verification shall be received by the applicant prior to submission.

14. Access and Parking. Areas sufficient for access to the tower and equipment location and for temporary off-street parking of at least two vehicles shall be provided. The type and configuration of the access and parking shall be subject to the standards set forth in Zoning Ordinance Chapter 7, Parking and Loading Requirements.

B. *Minimum Setbacks and Separations.*

1. *Setbacks From Property Lines.* Except for utility service antennas, the following setback requirements shall apply to all towers; provided, however, that the Town Council may reasonably reduce the standard setback requirements if the goals of this chapter would be better served thereby:

a. Towers must be set back a distance equal to at least one hundred fifty percent (150%) of the height of the tower from any adjoining lot line; provided, however, that the setback distance shall be increased as required to comply with the separation distances from residential uses in accordance with Table 1 set forth below.

b. Accessory buildings must satisfy the minimum zoning district setback requirements.

2. *Separations From Adjacent Uses.* Except for utility service antennas, the following separation requirements shall apply to all towers and antennas.

a. *Separation From Residential Uses.*

i. Tower separation shall be measured from the base of the tower to the lot line of the residential uses.

ii. Separation requirements for towers shall be 500 feet from any residentially zoned or used land including mixed-use.

The Town Council may reduce the standard separation requirements to 300' if, through information and data presented, the Council determines the goals of this chapter would be better served thereby.

b. *Separation Distances Between Towers.* Separation distances between towers shall be applicable for and measured between the proposed tower and pre-existing towers. The separation distances shall be measured by drawing or following a straight line between the base of the existing tower and the proposed base, pursuant to a site plan, of the proposed tower. The separation distances (listed in linear feet) shall be as shown in Table 2.

Table 2. Separation Distances Between Towers

	Monopole 65 ft. in height or greater	**Monopole less than 65 ft. in height but greater than 40 ft. in height**	**Monopole less than 40 ft. in height**
Monopole 65 ft. in height or greater	2,000 feet	1,500 feet	1,000 feet
Monopole less than 65 ft. in height but greater than 40 ft. in height	1,500 feet	1,500 feet	1,000 feet
Monopole less than 40 ft. in height	1,000 feet	1,000 feet	750 feet

C. *Buildings or Other Equipment Storage.*

1. *Antennas Mounted on Structures or Rooftops.* The equipment cabinet or structure used in association with antennas shall comply with the following:

a. Unless approved otherwise by the Town Council for good cause shown, but located in an underground vault.

b. If located above ground:

i. The cabinet or structure shall not contain more than 120 square feet of gross floor area or be more than 8 feet in height and shall be located on the ground.

~~b~~ii. Equipment storage buildings or cabinets shall comply with all applicable building codes.

2. *Antennas Mounted on Utility Poles, Light Poles, or Towers.* The equipment cabinet or structure used in association with antennas shall be located, unless otherwise approved by the Town Council in an underground vault. If approved to be above ground, then in accordance with the following:

a. In residential districts, the equipment cabinet or structure may be located:

i. In a required front yard or required street side yard, provided the cabinet structure is no greater than 3.5 feet in height and 20 square feet of gross floor area and the cabinet/structure is located a minimum of 3 feet from all lot lines. The cabinet/structure shall be screened by sight obscuring landscaping which obscures at least ninety-five percent (95%) of the structure at planting and throughout the duration of the cabinet or structure's existence with an ultimate height not to exceed forty-two (42) inches.

ii. In a required rear yard, provided the cabinet or structure is no greater than 5 feet in height or 120 square feet in gross floor area. The cabinet/structure shall be screened by sight obscuring landscaping which obscures at least ninety-five percent (95%) of the structure at planting and throughout the duration of the cabinet or structure's existence with an ultimate height of 6 feet.

iii. The entry or access side of a cabinet or structure shall be gated by a solid, sight-obscuring gate that is separate from the cabinet or structure.

b. In commercial or industrial districts the equipment cabinet or structure shall be no greater than 14 feet in height or 300 square feet in gross floor area. The structure or cabinet shall be screened by sight-obscuring landscaping with an ultimate height of 16 feet and a planted height of at least 6 feet. The entry or access side of a cabinet or structure shall be gated by a solid, sight-obscuring gate that is separate from the cabinet or structure. Such access way shall not face residentially zoned property.

3. *Modification of Building Size Requirements.* In the case of wireless facilities considered by the Town Council, the requirements of subsections (C)(1) and (C)(2) of this section may be modified by the Town Council to address site specific conditions and requirements.

D. *Co-location.*

1. Any new telecommunications tower shall be designed to accommodate future shared use by other communications providers. Design considerations shall include sufficient area for additional ground equipment, structural design of the tower, and sufficient electrical power available for the load of at least two (2) additional wireless service providers.

2. *Good Faith.* Applicants and permittees shall cooperate and exercise good faith in co-locating wireless telecommunications facilities on the same support structures or site, if the Town so requests. Good faith shall include sharing technical information to evaluate the feasibility of co-location, and may include negotiations for erection of a replacement support structure to accommodate co-location. A competitive conflict to co-location or financial burden caused by sharing such information normally will not be considered as an excuse to comply with this section.

3. *Third Party Technical Review.* In the event a dispute arises as to whether a permittee has exercised good faith in accommodating other users, the Town may require the applicant to obtain a third-party technical study at the applicant's expense. The Town may review any information submitted by the applicant and permittee(s) in determining whether good faith has been exercised.

4. *Exceptions.* No co-location may be required where the shared use would or does result in significant interference in the broadcast or reception capabilities of the existing wireless

telecommunications facilities or failure of the existing wireless telecommunications facilities to meet federal standards for emissions.

5. *Violation; penalty.* Failure to comply with co-location requirements when feasible may result in denial of a permit request or revocation of an existing permit. (24-08, Amended, 09/04/2024, Deleted and replaced)

Section 17.04 Application Types

A. *Administrative.* The following types of applications are processed administratively by staff:

1. Applications to change or modify an existing administratively approved wireless communication facility that remains in compliance with all chapter requirements.

2. Applications to change or modify an existing wireless communication facility approved through public review; provided, that the modification will not:

a. Increase the approved height of the supporting structure by more than ten percent (10%) or 20 feet, whichever is greater;

b. Cause the original approved number of antennas to be exceeded by more than fifty percent (50%);

c. Increase the original approved square footage of accessory buildings by more than 200 square feet;

d. Add new, additional, or larger microwave antenna dishes;

e. Expand the footprint of said support structure; or

f. Potentially cause significant adverse impacts on the existing support structure or the surrounding area.

3. Applications for co-location of additional antenna for an additional service provider on an existing administratively approved tower that remains in compliance with all chapter requirements.

4. Applications for co-location of additional antenna for an additional service provider on an existing tower approved through public review; provided, that the modification will not:

a. Increase the approved height of the supporting structure by more than ten percent (10%) or 20 feet, whichever is greater;

b. Cause the original approved number of antennas to be exceeded by more than fifty percent (50%);

c. Increase the original approved square footage of accessory buildings by more than 200 square feet;

d. Add new, additional, or larger microwave antenna dishes;

e. Expand the footprint of said support structure; or

f. Potentially cause significant adverse impacts on the existing support structure or the surrounding area.

5. Applications for new utility service antenna that comply with the height and setback requirements of the zoning district in which they are located.

6. Applications for mobile or temporary wireless facilities for more than seven (7) consecutive days.

B. *Public Review.*

1. Any new tower or modification to existing towers or antennas that do not meet the requirements in subsection (A) of this section for administrative review shall require review and approval as provided in subsection 17.05 (C)~~(2)~~.

2. Any new tower not meeting the setback or separation requirements in Section 17.03(B).

Section 17.05 Application Submittal, Review, and Processing

A. *General.* Unless waived in writing by Zoning Administrator, the following provisions shall govern the review of all wireless communication facility applications:

1. *Complete Application.* Applications for wireless communication facilities shall be filed electronically on the Town's website by an owner of real property and shall contain the area proposed for the wireless communication facility using the process established by the Director for such applications. All such applications shall include the information required in this section. Applications filed on behalf of the property owner by a third party shall include a statement from the property owner authorizing the submittal of the application.

2. Applications shall include documentation of compliance with items listed in Section 17.03(A) as applicable to the application submitted.

3. *Inventory of Existing Sites.* Each applicant for a new tower or co-location of new antenna on an existing tower shall provide to the Development Services Director an inventory of its existing towers, antennas, or sites approved for towers or antennas, that are either within the jurisdiction of the Town of Fountain Hills or within one (1) mile of the border thereof, including specific information about the location, height, and design of each tower. Each applicant shall also provide a one (1) year build-out plan for all other wireless communications facilities within the Town. The Development Services Director may share such information with other applicants applying for administrative approvals or special use permits under this chapter or with other organizations seeking to locate antennas within the jurisdiction of Town of Fountain Hills; provided, however, that the Development Services Director is not, by sharing such information, in any way representing or warranting that such sites are available or suitable.

4. *Utility Service Antennas.*

   a. If the antenna complies with the height requirements of the underlying zoning district, the plans for the antenna will be reviewed and approved with the overall site development plans if the site is being developed concurrently. If the antenna is being added to an existing utility site, the plans will be reviewed and processed consistent with the requirements of subsection (C)(2) of this section.

   b. If the antenna does not comply with the height requirements of the underlying zoning district, the plans for the antenna will be reviewed and processed consistent with the requirements of subsection (C)(3) of this section.

5. A list of the full names and contact information for all applicants, co- applicants, facility owner(s), facility operator(s), site developer(s), and wireless carrier(s), property owner(s) and other related third parties and their agent(s), if any, on whose behalf the application is being submitted.

~~5~~6. Proof of Authorization for Site Occupancy. Where an applicant is not the owner of the real property upon which it seeks to install its equipment or facility, it shall submit proof of authorization to occupy the site at issue.

If the applicant is leasing all or a portion of real property upon which it intends to install its facility or equipment, then the applicant shall provide a written copy of its lease with the owner of such property. The applicant may redact any financial terms contained within the lease, but it shall not redact any portion of the lease which details the amount of area leased nor the specific portion of the real property to which the applicant has obtained the right to occupy, access, or preclude others from entering.

Where an applicant seeks to Co-Locate new equipment into an existing facility, it shall provide a copy of its written co-location agreement with the owner of such pre-existing facility, from which it may redact any financial terms.

7. Fire Safety: The applicant shall submit a Fire Safety Plan that includes a general description of the personal wireless services facility for purposes of ensuring the Fire Department is fully informed and prepared in case of a fire. The Fire Safety Plan shall include:

a. Location of all Fire Safety Plan documents.

b. Location of the facility's alarm panel.

c. List of emergency contacts.

d. Specific responsibilities assigned to designated personnel.

e. Location of signal-processing equipment.

f. Location and listing of types of power equipment, including rectifiers, inverters, distribution cabinets, bus bars, cables, and communications raceways.

g. Listing and location of batteries, including description of quantities and types of batteries, specifying whether batteries are lithium-ion, nickel cadmium, sodium-nickel, valve-regulated lead acid, and/or vented, and description of any associated exhaust ventilation system(s).

h. Description of actions to detect and prevent thermal runaway events.

i. Description of whether the facility will be located in a lightning-prone area. If the facility is to be located in a lightning-prone area, description of how the facility shall comply with NFPA 780 Standard for the Installation of Lightning Protection Systems;

j. Description of location and types of fuses used to ensure that if the wireless transmission facility experiences overcurrent resulting from current exceeding the rating of equipment or the ampacity of a conductor, the facility shall turn off temporarily.

k. Depowering procedures including identification of locations of electrical depowering devices, which include:

(a) Coded floor prints located in the Fire Safety Plan document;

(b) Facility signage to direct fire personnel to depowering locations;

(c) The method of turning off power to the following:

i. Alternating current power board. This is the primary source of electric power for a telecommunications facility and is supplied by the local power company.

ii. Standby power generator. This unit, usually a turbine or diesel generator, provides standby ac power that is transferred manually or automatically whenever a loss of ac power is experienced.

iii. Direct current primary disconnect fuse or circuit breaker bay. This unit distributes dc power to the secondary fuse or circuit breaker panels throughout the central office. The secondary fuse or circuit breaker panels feed all the operating voltages to the central office branch circuits.

iv. Uninterruptible power supply (UPS)

v. HVAC systems serving the facility

vi. Alternative energy devices, such as wind turbines, fuel cells, photovoltaic systems, or other devices providing power to the facility.

l. Detailed electrical designs, signed and stamped by a licensed electrical engineer, demonstrating compliance with the Building, Electric and Fire Code. The Code compliance demonstration shall include all necessary underlying calculations and inputs, including but not limited to:

(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;

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

(c) Voltage Drop & Load Flow Study;

(d) Load Calculation;

(e) Panel Directories;

8. Soil Erosion and Sedimentation Control: A soil erosion and sedimentation control plan, prepared in accordance with the standards as established by the Town Engineering Division.

9. Engineer's Report: For the construction of all new wireless facilities and to the extent not already mandated herein, the applicant shall provide a report prepared and certified by a professional engineer certifying the integrity and safety of all proposed new towers and/or structures and indicating the location, type, and height of the proposed personal wireless services facility, antenna capacity, on-site and abutting off-site land uses, means of access, setbacks from property lines, all applicable American National Standards Institute (ANSI) technical and structural codes. To the extent that an application proposes the co-location of new equipment onto an existing tower or personal wireless services facility, the applicant shall provide an engineer's report certifying that the proposed shared use will not diminish

the structural integrity and safety of the existing structure and explaining what modifications, if any, will be required in order to certify above.

10. Visual Impact Analysis. The applicant shall provide a completed visual impact analysis that shall include the following:

a. A “Zone of Visibility Map” to determine locations from where the new facility will be seen.

b. A visual impact analysis which shall include photographic images taken from the perspectives of the properties situated in closest proximity to the location being proposed for the siting of the facility, as well as those properties which would reasonably be expected to sustain the most significant adverse aesthetic impacts due to such factors as their close proximity to the site, their elevation relative to the site, the existence or absence of a “clear line of sight” between the tower location and their location.

The photographic images shall depict the height at which the proposed facility shall stand when completed, including all portions and proposed attachments to the facility, including, but not limited to, the main support structure, all antennas, transmitters, whip antennas, lightning rods, t-bars, crossbars, and cantilever attachments which shall, in whole or in part, be affixed to it, any and all surrounding equipment compound(s), fencing, cellular equipment cabinets, transformers, transformer vaults and/or cabinets, sector distribution boxes, ice bridges, backup generators, including but not limited to equipment boxes, switch boxes, backup generators, ice bridges, etc., to the extent that any of such compound and/ or equipment will be visible from properties other than the property upon which the proposed tower and compound are to be installed.

The photographic images shall show the maximum silhouette, viewshed analysis, color and finish palette, and proposed screening and landscaping. The analysis shall include the results of the drone/balloon test, and other information as necessary to determine visual impact of the facility. The analysis shall include a map depicting where the photos were taken. Where consistent with the natural or built environment, the analysis shall include a native vegetation landscaping plan with a visual simulation of how the chosen plants, at maturity, will screen the site.

11. For proposed towers and facilities taller than 100 feet, the applicant shall perform a balloon test and shall publish reasonably advanced public notice of the same to enable the Reviewing Authority, property owners, and the community an opportunity to assess the actual adverse aesthetic impact which the proposed facility is likely to inflict upon the nearby properties and surrounding community. Said date and time will be established by the Development Services Director in coordination with the applicant, including an alternative date in case of inclement weather. If a balloon is used, the diameter shall be equal to the largest antenna or dish proposed for the CRS tower or the width of the tower, whichever is larger. The applicant will be responsible for publishing a public notice of the balloon test in at least one local newspaper publication and notifying abutters owning property within one thousand (1,000) feet radius, via U.S. Mail at least one week prior to the test.

12. If the application is for a facility that will not be attached to an existing utility pole and the facility's proposed height will be greater than 30 feet then structural elevations of the facility(ies) shall include any trees and other structures within twenty (20') feet, and their height.

13. Environmental Assessment Form. A completed environmental assessment form (EAF) and a completed visual EAF addendum if required by ADEQ.

14. FCC Compliance Report.

An FCC compliance report, prepared by a licensed engineer, and certified under penalties of perjury, that the content thereof is true and accurate, wherein the licensed engineer shall certify that the proposed facility will be FCC compliant as of the time of its installation, meaning that the facility will not expose members of the general public to radiation levels that exceed the permissible radiation limits which the FCC has set.

If it is anticipated that more than one carrier and/or user is to install transmitters into the facility, the FCC compliance report shall take into account anticipated exposure from all users on the facility and shall indicate whether or not the combined exposure levels will or will not exceed the permissible General Population Exposure Limits, or alternatively, the occupational Exposure Limits, where applicable.

Such FCC Compliance Report shall provide the calculation or calculations with which the engineer determined the levels of RF radiation and/or emissions to which the facility will expose members of the general public.

On the cover page of the report, the report shall explicitly specify: (a) Whether the applicant and their engineer are claiming that the applicable FCC limits based upon which they are claiming FCC compliance are the General Population Exposure Limits or the Occupational Exposure Limits. If the applicant and/or their engineer are asserting that the Occupational Exposure Limits apply to the proposed installation, they shall detail a factual basis as to why they claim that the higher set of limits is applicable, (b) The exact minimum distance factor, measured in feet, which the applicant's engineer used to calculate the level of radiation emissions to which the proposed facility will expose members of the general public. The minimum distance factor is the closest distance (i.e., the minimum distance) to which a member of the general public shall be able to gain access to the transmitting antennas mounted upon, or which shall be a part of, the proposed facility.

15. FCC License. A copy of any applicable Federal Communications Commission license possessed by any carrier named as an applicant, co-applicant, or whose equipment is proposed for installation as of the time the application is being filed with the Town.

16. Effective Prohibition Claims.

a. The Town is aware that applicants seeking approvals for the installation of new wireless Facilities often assert that federal law, and more specifically the TCA, prohibits the local government from denying their respective applications.

In doing so, they assert that their desired facility is "necessary" to remedy one or more significant gaps in a carrier's personal wireless service, and they proffer computer-generated propagation maps to establish the existence of such purported gaps.

The Town is additionally aware that, in December 2018, driven by a concern that propagation maps created and submitted to the FCC by wireless carriers were inaccurate, the FCC caused its staff to perform actual drive tests, wherein the FCC staff performed 24,649 tests, driving nearly ten thousand (10,000) miles through twelve (12) states, with an additional 5,916 stationary tests conducted at 42 locations situated in nine (9) states.

At the conclusion of such testing, the FCC Staff determined that the accuracy of the propagation maps submitted to the FCC by the wireless carriers had ranged from as little as 16.2% accuracy to a maximum of 64.3% accuracy.

As a result, the FCC Staff recommended that the FCC no longer accept propagation maps from wireless carriers without supporting drive test data to establish their accuracy. A copy of the FCC Staff's 66-page report is made a part of this Chapter as Appendix 1.

The Town considers it of critical import that applicants provide truthful, accurate, complete, and sufficiently reliable data to enable the Town Council to render determinations upon applications for new wireless facilities consistent with this Chapter's requirements and the TCA's statutory requirements.

Consistent with same, if, at the time of filing an application under this Chapter, an applicant intends to assert before the Town Council or the Town that: (a) an identified wireless carrier suffers from a significant gap in its personal wireless services within the Town, (b) that the applicant's proposed installation is the least intrusive means of remedying such gap in services, and/or (c) that under the circumstances pertaining to the application, a denial of the application by the Town Council would constitute an "effective prohibition" under Section 47 U.S.C. §332 the TCA, then, at the time of filing such application, the applicant shall be required to file a written statement which shall be entitled:

"Notice of Effective Prohibition Conditions"

If an applicant files a Notice of Effective Prohibition Conditions, then the applicant shall be required to submit Probative Evidence to enable the Town Council to reasonably determine:

i. Whether or not the conditions alleged by the respective applicant exist,

ii. Whether there exists a significant gap or gaps in an identified wireless carrier's personal wireless services within the Town,

iii. The geographic locations of any such gaps, and

iv. The geographic boundaries of such gaps, to enable the Town Council to determine whether granting the respective application would be consistent with the requirements of this Chapter and the legislative intent behind same, and whether or not Federal law would require the Town Council to grant the respective application, even if it would otherwise violate the Town Code, including, but not limited to, this Chapter.

b. The additional materials which the applicant shall then be required to provide shall include the following:

i. Drive Test Data and Maps. If, and to the extent that an applicant claims that a specific wireless carrier suffers from a significant gap in its personal wireless services within the Town, the applicant shall conduct or cause to be conducted a drive test within the specific geographic areas within which the applicant is claiming such gap or gaps exist, for each frequency at which the carrier provides personal wireless services. The applicant shall provide the Town and the Town Council with the actual drive test data recorded during such drive test, in a simple format which shall include, in table format:

(a) The date and time for the test or tests,

(b) The location, in longitude and latitude, of each point at which signal strength was recorded and

(c) Each signal strength recorded, measured in DBM, for each frequency. Such data is to be provided in a separate table for each frequency at which the respective carrier provides personal wireless services to any of its end-use customers.

(d). The applicant shall also submit drive test maps depicting the actual signal strengths recorded during the actual drive test for each frequency at which the carrier provides personal wireless services to its end-use customers.

If an applicant claims that it needs a “minimum” signal strength (measured in DBM) to remedy its gap or gaps in service, then for each frequency, the applicant shall provide three (3) signal strength coverage maps reflecting actual signal strengths in three (3) DBM bins, the first being at the alleged minimum signal

strength, and two (2) additional three (3) DBM bin maps depicting signal strengths immediately below the alleged minimum signal strength claimed to be required.

By way of example, if the applicant claims that it needs a minimum signal strength of – 95 DBM to remedy its alleged gap in service, then the applicant shall provide maps depicting the geographic area where the gap is alleged to exist, showing the carrier's coverage at – 95 to -98 DBM, -99 to -101 DBM, and -102 to -104 DBM, for each frequency at which the carrier provides personal wireless services to its end-use customers.

ii. Denial of Service and/or Dropped Call Records. If and to the extent that an applicant claims that a specific wireless carrier suffers from a capacity deficiency or a gap in service that renders the carrier incapable of providing adequate coverage of its personal wireless services within the Town, then the applicant shall provide dropped call records and denial of service records evidencing the number and percentage of calls within which the carrier's customers were unable to initiate, maintain and conclude the use of the carrier's personal wireless services without actual loss of service, or interruption of service.

17. Estimate for Cost of Removal of Facility. At or prior to the filing of an application for a special use permit for the installation of a new personal wireless service facility, each respective applicant shall provide a written estimate for the cost of the decommissioning and removal of the facility, including all equipment that comprises any portion or part of the facility, compound and/or complex, as well as any accessory facility or structure, including the cost of the full restoration and reclamation of the site, to the extent practicable, to its condition before development in accord with the decommissioning and reclamation plan required herein. The Town Council's Engineer shall review this estimate. A bond for the cost of removal as required in Sec. 17.06 A. 2. shall be filed prior to commencement of construction.

18. Property Owner Consent & Liability Acknowledgement. A signed written consent from each owner of the subject real property upon which the respective applicant is seeking installation of its proposed personal wireless service facility, wherein the owner or owners both authorize the applicant to file and pursue its application and acknowledge the

potential landowner's responsibility, under Section 17.08 for engineering, legal and other consulting fees incurred by the Town.

19. *Applications Using Existing Towers.*

a. Dimensioned, to-scale drawings showing the existing and proposed antenna on the tower including the height of the tower and the antennas.

b. The number and type of existing and proposed antennas.

c. Engineering calculations documenting the structural changes and certifying the tower's ability to carry the new antennas.

d. Dimensioned, to-scale drawings illustrating modification of ground equipment, if any.

20. *Applications Using New Towers*

In addition to any information required for applications for special use permits pursuant to Chapter 2, Section 2.02, applicants for a new wireless facility shall submit the following information:

a. A site plan as required in Section 2.04 plus zoning, General Plan classification of the site and all properties within the applicable separation distances set forth in Section 17.03(B)(1), adjacent roadways, proposed means of access, elevation drawings of the proposed tower and any other structures, photo simulations showing the tower in the proposed location from at least four (4) directions, and other information deemed by the Development Services Director to be necessary to assess compliance with this chapter.

b. The setback distance between the proposed tower and the nearest residential unit and residentially zoned properties. Include an illustration of the fall zone for the tower.

c. The separation distance from other towers described in the inventory of existing sites submitted pursuant to Section 17.03(B)(2) shall be shown on an updated site plan or map. The applicant shall also identify the type of construction of the existing tower(s) and the owner/operator of the existing tower(s), if known.

d. Method of fencing, and finished color and, if applicable, the method of camouflage and illumination.

e. A description of compliance with Sections 17.03(A)(3), 17.03(A)(4), 17.03(A)(5), 17.03(A)(7), 17.03(A)(8), 17.03(A)(9), 17.03(A)(10), 17.03(A)(11), 17.03(B), subsection (A)(3) of this section, Sections 17.06(A) and 17.06(B) and all applicable federal, state or local laws.

f. A notarized statement by the applicant as to whether construction of the tower will accommodate collocation of additional antennas for future users.

g. Identification of the entities providing the backhaul network for the tower(s) described in the application and other cellular sites owned or operated by the applicant in the municipality.

h. Alternatives Analysis. An itemized list of alternative sites considered, with a comprehensive explanation of reasons alternative sites are not technologically feasible. Explanation shall include specific comparative analysis of how different sites would impact aesthetic values, and other environmental values.

i. A description of the feasible alternative location(s) of future towers or antennas within the Town of Fountain Hills based upon existing physical, engineering, technological or geographical limitations in the event the proposed tower is erected.

j. A statement of compliance with Federal Communications Commission (FCC) radio frequency (RF) exposure standards.

20. *Filing Fee.* Payment of a filing fee in an amount established by a schedule adopted by resolution of the Council and filed in the offices of the Town Clerk. No part of the filing fee shall be returnable.

B. *Shot Clocks and Tolling.* To comply with the requirements of Section 47 U.S.C. §332(c)(7)(B)(ii) of the TCA, the following shot clock periods set forth hereinbelow shall be presumed to be reasonable periods within which the Town shall render determinations upon applications for wireless communication facilities.

The Town shall render determinations upon such applications within the periods set forth hereinbelow, unless the applicable shot clock period listed below is tolled, extended by

agreement or the processing of the application is delayed due to circumstances beyond the Town's control.

1. *Application Shot Clocks.*

   a. *Receipt of Initial Application.* Upon receipt of an application, the Development Services Director, or designee, shall review the application for completeness. If the Director determines the application is: (i) incomplete, (ii) missing required application materials, (iii) is the wrong type of application, or (iv) is otherwise defective, then, within ten (10) days for administrative applications and thirty (30) days for public hearing applications of the Town's receipt of the application, the Director, or their designee, shall notify the applicant of the finding and state what is needed to have a complete application.

   The notice of incompleteness shall toll the shot clock, which shall not thereafter resume running unless and until the applicant tenders an additional submission to the Director to remedy the issues identified in the notice of incomplete application. The submission of any responsive materials by the applicant shall automatically cause the shot clock period to resume running.

   If upon receipt of any additional materials from the applicant, the Director determines that the application is still incomplete and/or defective, then the Director shall, once again notify the applicant within ten (10) days for administrative applications and thirty (30) days for public hearing applications of the applicant having filed its supplemental or corrected materials to the Town and the shot clock shall once again be tolled, and the same procedure provided for hereinabove shall be repeated.

   If Applicant does not cure the stated deficiencies within 30 days, the application shall be considered withdrawn or closed.

   b. *Application Review.* The shot clock for administrative applications is ninety (90) days. The shot clock for applications with new towers, monopoles, utility poles and other wireless facilities that trigger public review applications is one hundred fifty (150) days.

2. *Shot Clock Tolls, Extensions and Reasonable Delay Periods.* Consistent with the letter and intent of Section 47 U.S.C. §332(c)(7)(B)(ii) of the TCA, each of the shot clock periods set forth within subsection (B) of this section shall generally be presumed to be sufficient periods within which the Town shall render decisions upon applications.

Notwithstanding the same, the applicable shot clock periods may be tolled, extended by mutual agreement between any applicant and/or its representative and the Town, and the Town shall not be required to render its determination within the shot clock period presumed to be reasonable for each type of application, where the processing of such application is reasonably delayed, as described hereinbelow.

a. *Tolling of the Applicable Shot Clock Due to Incompleteness and/or Applicant Error.* As provided for within subsection (B)(1) of this section, in the event that the Development Services Director deems an application incomplete, the Director shall send a notice of incompleteness to the applicant to notify the applicant that its application is incomplete and/or contains material errors, and shall reasonably identify the missing information and/or documents and/or the error(s) in the application.

If the Director sends a notice of incompleteness as described hereinabove, the applicable shot clock shall automatically be tolled, meaning that the applicable shot clock period within which the Town is required to render a final decision upon the application shall immediately cease running, and shall not resume running, unless and until the Town receives a responsive submission from the applicant.

If and when the applicant thereafter submits additional information in an effort to complete its application, or cure any identified defect(s), then the shot clock shall automatically resume running, but shall not be deemed to start running anew.

The applicable shot clock period shall, once again, be tolled if the Director thereafter provides a second notice that the application is still incomplete or defective, despite any additional submissions which have been received by the Town, from the applicant, up to that point.

b. *Shot Clock Extension by Mutual Agreement.* The Town shall be free to extend any applicable shot clock period by mutual agreement with any respective applicant. This discretion on the part of the Town shall include the Town's authority to request, at any time, and for any period of time the Town may deem reasonable or appropriate under the circumstances, consent from a respective applicant to extend the applicable shot clock period to enable the Town, the applicant, or any relevant third party, to complete any type of undertaking or task related to the review, analysis, processing, and determination of the particular application, which is then pending before the Town, to

the extent that any such undertaking, task, or review is consistent with, or reasonably related to, compliance with any federal, state, or local law and/or the requirements of any provision of the Town Code, including but not limited to this chapter.

In response to any request by the Town, the applicant, by its principal, agent, attorney, site acquisition agent, or other authorized representative, can consent to any extension of any applicable shot clock by affirmatively indicating its consent either in writing or by affirmatively indicating its consent on the record at any public hearing or public meeting. The Town shall be permitted to reasonably rely upon a representative of the applicant indicating that they are authorized to grant such consent on behalf of the respective applicant, on whose behalf they have been addressing the Town within the review process.

c. *Reasonable Delay Extensions of Shot Clock Periods.* The Town recognizes that there may be situations wherein, due to circumstances beyond the control of the Town and/or the Town Council, the review and issuance of a final decision upon an application for a wireless communication facility cannot reasonably be completed within the application shot clock periods delineated within subsection (B) of this section.

If, despite the exercise of due diligence by the Town, the determination regarding a specific application cannot reasonably be completed within the applicable shot clock period, the Town shall be permitted to continue and complete its review and issue its determination at a date beyond the expiration of the applicable period, if the delay of such final decision is due to circumstances including, but not limited to, those enumerated hereinbelow, each of which shall serve as a reasonable basis for a reasonable delay of the applicable shot clock period.

i. In the event that the rendering of a final decision upon an application under this chapter is delayed due to natural and/or unnatural events and/or forces which are not within the control of the Town, such as the unavoidable delays experienced in government processes due to the COVID 19 pandemic, and/or mandatory compliance with any related federal or state government orders issued in relation thereto, such delays shall constitute reasonable delays which shall be recognized as acceptable grounds for extending the period for review and the rendering of final determinations beyond the period allotted under the applicable shot clock.

ii. In the event that applicant tenders eleventh-hour submissions to the Town in the form of (a) expert reports, (b) expert materials, and/or (c) materials which require a significant period for review due either to their complexity or the sheer volume of materials which an applicant has chosen to provide to the Town at such late point in the proceedings, the Town shall be afforded a reasonable time to review such late-submitted materials.

If reasonably necessary, the Town shall be permitted to retain the services of an expert consultant to review any late-submitted expert reports which were provided to the Town, even if such review or services extend beyond the applicable shot clock period, so long as the Town completes such review and retains and secures such expert services within a reasonable period of time thereafter and otherwise acts with reasonable diligence in completing its review and rendering its final decision.

C. *Review and Processing of Applications.*

1. Conformity to the following shall be considered in review of all applications:

a. The application is consistent with the objectives of this chapter.

b. The height of the proposed tower.

c. The adequacy of the proposed site, considering such factors as the sufficiency of the size of the site to comply with the established criteria, the configuration of the site, and the extent to which the site is formed by logical boundaries (e.g., topography, natural features, streets, relationship of adjacent uses, etc.) that provide for the ability to comply with the provisions of this chapter.

d. The extent to which the proposal responds to the impact of the proposed development on adjacent land uses, especially in terms of visual impact.

e. The extent to which the proposed telecommunications facility uses concealment elements.

f. The extent to which the proposed facility is integrated with existing structures (i.e., buildings, signs, utility poles, etc.) with particular reference to design characteristics that have the effect of reducing or eliminating visual obtrusiveness.

g. An applicant's compliance with all town requirements with respect to previous applications.

h. Whether the proposed installation will inflict a significant adverse impact upon the property values of properties that are located adjacent to, or in close proximity to, the proposed site or properties that are otherwise situated in a manner that would cause the proposed installation to inflict a significant adverse impact upon their value.

i. Whether the proposed installation will be incompatible with the use and/or character of properties located adjacent to or in close proximity to the proposed site or other properties situated in a manner that would cause the proposed installation to be incompatible with their respective use.

j. Whether the proposed installation will be incompatible with and/or would have an adverse aesthetic impact upon or detract from the use and enjoyment of, and/or character of, recognized aesthetic assets of the Town, including, but not limited to, scenic areas and/or scenic ridgelines, scenic areas, public parks, and/or any other traditionally or historically recognized valuable scenic assets of the Town.

k. Whether the proposed installation shall have a sufficient fall zone and/or safe zone around the facility to afford the general public safety against the potential dangers of structural failure, icefall, debris fall, and fire.

l. Whether the applicant has mitigated the potential adverse impacts of the proposed facility to the greatest extent reasonably feasible. To determine mitigation efforts on the part of the applicant, the mere fact that a less intrusive site, location, or design would cause an applicant to incur additional expense is not a reasonable justification for an application to have failed to propose reasonable mitigation measures.

2. *Review of Administrative Applications.*

a. Administrative applications will be reviewed by staff using the Town's standard building permit review processes.

b. Applications for mobile or temporary wireless facilities which remain in place for more than seven (7) consecutive days must submit a request for a temporary use permit as provided in Section 2.03.

3. *Review and Processing of Public Review Applications.*

a. Applications which require public review and approval on private property will be processed as special use permits and follow the requirements listed in Section 2.02 for special use permits. Applications on Town owned property will not require a special use permit but will follow the same requirements for notice for review by the Town Council.

b. Factual Determinations.

To decide applications under this Section, the Town Council shall render factual determinations, which shall include two (2) specific types of factual determinations, as applicable.

First, the Council shall render local zoning determinations according to Section i. hereinbelow.

Then, if, and only if, an applicant asserts claims that a denial of its application would effectively prohibit an identified Wireless Carrier from providing Personal Wireless Services within the Town, or its proposed wireless facility or installation is necessary to remedy a significant gap in personal wireless services for an explicitly identified Wireless Carrier, and that its proposed installation is the least intrusive means of remedying a specifically identified significant gap or gaps.

The Council shall then additionally render TCA determinations in accord with Section ii. herein below.

The Council shall separately record each factual determination it makes in a written decision and shall reference, or make note of, the evidence-based upon which it rendered each of its factual determinations.

Each factual determination made by the Council shall be based upon Substantial Evidence. For purposes of this provision, “Substantial Evidence” shall mean such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. It means less than a preponderance but more than a scintilla of evidence.

Evidence that the Council may consider shall include any evidence submitted in support of an application and any evidence submitted by anyone opposing a respective application, whether such evidence is in written or photographic form or whether it is in

the form of testimony by any expert, or any person who has personal knowledge of the subject of their testimony. The Council may, of course, additionally consider as evidence any information or knowledge which they, themselves, personally possess and any documents, records, or other evidence which is a matter of public record, irrespective of whether such public record is a record of the Town, or is a record of or is maintained by, another federal, state and/or other governmental entity and/or agency which maintains records which are available for, or subject to, public review.

The requirements for specific factual determinations set forth below are intended to enure to the benefit of the Town, its residents, and property owners, and not applicants.

If, and to the extent that the Town Council fails to render one or more of such determinations, that omission shall not constitute grounds upon which the respective applicant can seek to annul, reverse or modify any decision of the Town Council.

i Local Zoning Determination

The Council shall make the following factual determinations as to whether the application meets the requirements for granting a special use permit under this Chapter.

(a) Compliance with Section 2.02

Whether the proposed installation will meet each of the conditions and standards set forth within Section 2.02 in the absence of which the Town Council is not authorized to grant a special use permit.

(b) Potential Adverse Aesthetic Impacts

Whether the proposed installation will inflict a significant adverse aesthetic impact upon properties located adjacent to, or in close proximity to, the proposed site or any other properties situated in a manner that would sustain significant adverse aesthetic impacts by the installation of the proposed facility.

(c) Potential Adverse Impacts Upon Real Estate Values

Whether the proposed installation will inflict a significant adverse impact upon the property values of properties that are located adjacent to, or in close

proximity to, the proposed site or properties that are otherwise situated in a manner that would cause the proposed installation to inflict a significant adverse impact upon their value.

(d) Potential Adverse Impact Upon the Character of the Surrounding Community

Whether the proposed installation will be incompatible with the use and/or character of properties located adjacent to or in close proximity to the proposed site or other properties situated in a manner that would cause the proposed installation to be incompatible with their respective use.

(e) Potential Adverse Impacts Upon Historic Properties or Historic Districts

Whether the proposed installation will be incompatible with and/or would have an adverse impact upon, or detract from the use and enjoyment of, and/or character of a historic property, historic site, and/or historic district, including, but not limited to, historic structures, properties and/or districts which are listed on, or are eligible for listing on, the National Register of Historic Places.

(f) Potential Adverse Impacts Upon Ridgelines or Other Aesthetic Resources of the Town

Whether the proposed installation will be incompatible with and/or would have an adverse aesthetic impact upon or detract from the use and enjoyment of, and/or character of, recognized aesthetic assets of the Town, including, but not limited to, scenic areas and/or scenic ridgelines, scenic areas, public parks, and/or any other traditionally or historically recognized valuable scenic assets of the Town.

(g) Sufficient Fall Zones

Whether the proposed installation shall have a sufficient fall zone and/or safe zone around the facility to afford the general public safety against the potential dangers of structural failure, icefall, debris fall, and fire.

(h) Mitigation

Whether the applicant has mitigated the potential adverse impacts of the proposed facility to the greatest extent reasonably feasible. To determine mitigation efforts on the part of the applicant, the mere fact that a less intrusive site, location, or design would cause an applicant to incur additional expense is not a reasonable justification for an application to have failed to propose reasonable mitigation measures.

If, when applying the evidentiary standards set forth in Section 17.05 C. 3. b. i. hereinabove, the Town Council determines that the proposed facility would not meet the standards set forth within Section 2.02 or that the proposed facility would inflict one or more of the adverse impacts described hereinabove to such a substantial extent that granting the respective application would inflict upon the Town and/or its citizens and/or property owners the types of adverse impacts which this provision was enacted to prevent, the Town Council shall deny the respective application unless the Council additionally finds that a denial of the application would constitute an Effective Prohibition, as provided for in Sections 17.05 C. 3. b. ii. and iii immediately hereinbelow.

ii. TCA Determinations

In cases within which an applicant has filed a "Notice of Effective Prohibition Conditions," the Town Council shall determine if a denial of the respective application would "Effectively Prohibit" a specifically identified Wireless Carrier from providing Personal Wireless Services within any geographic area or areas in the Town.

More specifically, the Town Council shall determine whether a denial of the specific application would either: (i) prevent an identified Wireless Carrier from providing personal wireless services within a specific geographic area or areas within the Town or (ii) would prevent a specific Wireless Carrier from constructing a sufficient number of such facilities necessary to enable it to provide Personal Wireless Services within the Town.

In determining whether a denial of any specific application would constitute an "Effective Prohibition," the Town Council shall determine: (1) whether an applicant has established that an identified Wireless Carrier suffers from one or more

significant gaps in its Personal Wireless Services, and (2) whether its proposed installation is the least intrusive means of remedying any such gap or gaps.

(a) Significant Gap in Personal Wireless Services of an Identified Carrier

The Town Council shall determine whether the applicant has established, based upon probative evidence provided by the applicant and/or its representative, that a specific Wireless Carrier suffers from a significant gap in its personal wireless services within the Town.

In rendering such determination, the Council shall consider factors including, but not necessarily limited to:

(1) Whether the identified Wireless Carrier, which is alleged to suffer from any significant gap in their personal wireless services, already provides Adequate Service in its Personal Wireless Services to its customers at any frequency being used by the carrier to provide personal wireless services to its end-use customers,

(2) Whether any such alleged gap is relatively large or small in geographic size,

(3) Whether the number of the carrier's customers affected by the gap is relatively small or large,

(4) Whether or not the location of the gap is situated on a lightly traveled road, or sparsely or densely occupied area, and/or

(5) Overall, whether the gap is relatively insignificant or otherwise relatively de minimis.

An Effective Prohibition shall not be found to exist under subparagraph (iii) hereinbelow if a Wireless Carrier has adequate coverage in any specified geographic area, such that its end-use customers can use their cellular telephones to connect to landlines using the Carrier's Personal Wireless Services, but the frequency at which the customers are using such services is not the frequency most desired by the Carrier.

(b) Least Intrusive Means of Remedying Gap(s) in Service

The Town Council shall determine whether the applicant has established, based upon probative evidence provided by the applicant and/or its representative, that the installation of the proposed facility at the specific site proposed by the applicant and the specific portion of the site proposed by the applicant, and at the specific height proposed by the applicant, is the least intrusive means of remedying whatever significant gap or gaps which the applicant has contemporaneously proven to exist as determined by the Town Council based upon any evidence in support of, and/or in opposition to, the subject application.

In rendering such determination, the Council shall consider factors including, but not necessarily limited to:

(1) Whether the proposed site is the least intrusive location at which a facility to remedy an identified significant gap may be located, and the applicant has reasonably established a lack of potential alternative less intrusive sites and lack of sites available for co-location,

(2) Whether the specific location on the proposed portion of the selected site is the least intrusive portion of the site for the proposed installation

(3) Whether the height proposed for the facility is the minimum height actually necessary to remedy an established significant gap in service,

(4) Whether or not a pre-existing structure can be used to camouflage the facility and/or its antennas,

(5) Whether or not, as proposed, the installation mitigates adverse impacts to the greatest extent reasonably feasible through the employ of Stealth design, screening, use of color, noise mitigation measures, etc., and/or

(6) Overall whether or not there is a feasible alternative to remedy the gap through alternative, less intrusive substitute installations.

An Effective Prohibition shall also not be found to exist in subparagraph (iii) hereinbelow if an applicant fails to establish before the Town Council that any existing geographic gap or capacity deficiency in the specific Wireless Carrier's

coverage cannot be remedied through a less intrusive means than what is being proposed, including, but not limited to, potential installations on alternative less intrusive sites, a shorter tower or facility, the incorporation of a more stealthy design, etc.

iii. Finding of Effective Prohibition or Lack of Effective Prohibition

After considering the evidence presented before it, the Town Council shall determine whether or not a denial of the respective application would constitute an effective Prohibition.

If the Town Council affirmatively determines that the applicant has failed to establish either: (i) that a denial of the application would prevent an identified Wireless Carrier from providing personal wireless services within a specific geographic area or areas within the Town or (ii) that a denial of the application would prevent a specific Wireless Carrier from constructing a sufficient number of such facilities necessary to enable it to provide Personal Wireless Services within the Town, then the Town Council shall find that a denial of the application does not constitute an Effective Prohibition.

If the Town Council affirmatively determines that: (i) a denial of the application would prevent an identified Wireless Carrier from providing personal wireless services within a specific geographic area or areas within the Town, or (ii) that a denial of the application would prevent a specific Wireless Carrier from constructing a sufficient number of such facilities necessary to enable it to provide Personal Wireless Services within the Town, then the Town Council shall find that a denial of the application would constitute an Effective Prohibition, and the Town Council shall grant the subject application, irrespective of whether or not the granting of same would otherwise be inconsistent with any other provision of this Section §17.05 C. 3. b. Provided, the Town reserves the right to deny an application even if doing so leads to an effective prohibition to the extent allowed by the safe harbors contained in 47 U.S.C. §§ 253(b) and (c) and incorporated into 332(c)(7)(B)(i), based on the evidence of record.

c. *Availability of Suitable Existing Towers, Other Structures, or Alternative Technology.* No new tower shall be permitted unless the applicant demonstrates to the reasonable

satisfaction of the Town Council that no existing tower, structure or alternative technology that does not require the use of towers or structures can accommodate the applicant's proposed antenna. An applicant shall submit information requested by the Town Council related to the availability of suitable existing towers, other structures or alternative technology. Evidence submitted to demonstrate that no existing tower, structure or alternative technology can accommodate the applicant's proposed antenna may consist of any of the following:

i. No existing towers or structures are located within the geographic area, which meet ~~applicant's~~ reasonable engineering and personal wireless service related quality requirements. This evidence cannot be merely conclusory and must be supported by propagation maps that include the underlying analysis models, engineering reports speaking to the technical infeasibility, dropped call logs, and other data showing that a new tower is the only means of accommodating the proposed antenna.

ii. Existing towers or structures are not of sufficient height to meet applicant's engineering requirements.

iii. Existing towers or structures do not have sufficient structural strength to support applicant's proposed antenna and related equipment.

iv. The applicant's proposed antenna would cause electromagnetic interference with the antenna on the existing towers or structures, or the antenna on the existing towers or structures would cause interference with the applicant's proposed antenna as certified by an RF engineer.

v. The fees, costs, or contractual provisions required by the owner in order to share an existing tower or structure or to adapt an existing tower or structure for sharing are unreasonable. Costs exceeding new tower development are presumed to be unreasonable.

vi. The applicant demonstrates that there are other limiting factors that render existing towers and structures unsuitable.

vii. The applicant demonstrates that an alternative technology that does not require the use of towers or structures, such as a cable micro cell network using multiple

low-powered transmitters/receivers attached to a wire line system, is unsuitable. Costs of alternative technology that exceed new tower or antenna development shall not be presumed to render the technology unsuitable.

d. Following approval by the Town Council, the applicant may apply for a building permit through the standard application process. Construction shall not commence prior to approval of the building permit.

4. Environmental Impacts

If, and to the extent that, the Town Council determines a proposed installation bears the potential for a significant adverse impact upon the environment within the meaning of ADEQ and/or the NEPA, then the Council shall be expected to comply with the requirements of ADEQ in determining both:

a. The extent of adverse impacts upon the environment and/or historic properties; and,

b. What mitigation measures the applicant should be required to undertake to minimize the adverse environmental impacts and/or impacts upon historic sites, structure and/or districts.

If a respective applicant fails to obtain a review from the ADEQ and/or NEPA and opinion letters from the ADEQ and the FCC pertaining to its proposed installation prior to a first public hearing before the Town Council for the respective application, then the Town Council may make direct requests to the ADEQ and the FCC for their review of the application. The Town Council may request the FCC's review and input in completing the statutorily-required environmental impact analysis pursuant to ADEQ and NEPA.

In addition, the Town Council shall comply with the statutory requirements of ADEQ to complete an ADEQ review, make determinations of significance, and, where appropriate, require the applicant to complete a draft environmental impact statement and, if additionally appropriate, to thereafter complete a final environmental impact statement and analysis.

So long as the Town Council acts with reasonable diligence in completing its ADEQ and NEPA review, if compliance with the statutory requirements for environmental review

requires a period of effort that extends beyond the expiration of the applicable shot clock period, the delays beyond such period shall be deemed reasonable.

5. Historic Site Impacts

The Town Council shall consider the potential adverse impacts of any proposed facility upon any historic site, district, or structure consistent with the Town's historic preservation law requirements and comprehensive plan and ADEQ.

If, and to the extent that, the Town Council determines that a proposed installation bears the potential for a significant adverse impact on a historic site or a historic district within the meaning of ADEQ and/or the NHPA (especially if the historic site at issue is listed upon the National Register of historic places), then the Council shall comply with the requirements of both ADEQ and Town law in determining both:

a. The extent of adverse impacts upon the historic properties, and

b. What mitigation measure might the applicant be required to undertake to minimize the adverse environmental impacts and/or adverse impacts upon historic sites, structures and/or district.

Should a respective applicant fail to obtain a SHPO and/or a Section 106 review under NHPA, and opinion letters from SHPO and the FCC pertaining to its proposed installation prior to a first public hearing before the Town Council for the respective application, then the Town Council shall make direct requests to SHPO and the FCC for their review of the application. They shall request SHPO and the FCC's review and input in completing the statutorily-required environmental/historic impact analysis pursuant to ADEQ and NHPA.

This request shall include, but not be limited to, a request to the FCC for a Section 106 review, as defined in this Chapter, as the Town recognizes each application for a special use permit for the installation of a personal wireless services facility shall constitute "an undertaking" for purposes of compliance with the National Historic Preservation Act.

In addition, the Town Council shall comply with the statutory requirements of ADEQ to complete a SEQ ADEQ RA review, make determinations of significance, and, where appropriate, require the applicant to complete a draft environmental impact statement, and

if additionally appropriate, to thereafter complete a final environmental impact statement and analysis.

So long as the Town Council acts with reasonable diligence in completing its ADEQ and NHPA review, if compliance with the statutory requirements for historic preservation review requires a period of effort that extends beyond the expiration of the applicable shot clock period, the delays beyond such period shall be deemed reasonable.

6. Tribal Site Impacts

The Town Council shall consider the potential adverse impacts of any proposed facility upon any tribal lands associated with the Fort McDowell Yavapai Nation and the Salt River Prima-Maricopa Indian Community near or within the general area of Fountain Hills, Arizona. If, and to the extent that, the Town Council determines that a proposed installation bears the potential for a significant adverse impact on such tribal lands, then the Council shall issue notice to tribal representatives and request tribal review of the application.

~~6~~7. Force Majeure

In the event that the rendering of a final decision upon an application under this Chapter is delayed due to natural and/or unnatural events and/or forces which are not within the control of the Town or the Town Council, such as the unavoidable delays experienced in government processes due to the COVID 19 pandemic, and/or mandatory compliance with any related federal or state government orders issued in relation thereto, such delays shall constitute reasonable delays which shall be recognized as acceptable grounds for extending the period for review and the rendering of final determinations beyond the period allotted under the applicable shot clock.

~~47~~8. In granting a permit, the Town may impose conditions to the extent such conditions are necessary to minimize any adverse effect of the proposed tower on adjoining properties.

Section 17.06 Maintenance and Operation

A. *Removal of Abandoned Antennas and Towers; Bond Required.*

1. Any antenna or tower that is not operated for a continuous period of ninety (90) days shall be deemed abandoned. Within ninety (90) days of receipt of notice from the Town of Fountain Hills notifying the owner of such abandonment, the owner of such antenna or tower shall completely remove the same and all related equipment and improvements and shall restore all affected areas to a condition compliant with all applicable laws, which includes without limitation the Code. Failure to remove an abandoned antenna or tower within said ninety (90) day period shall be grounds to remove the tower or antenna at the owner's expense. The Town shall have the right (but not the obligation) to perform such removal and restoration with or without notice. If there are two (2) or more users of a single tower, then this provision shall not become effective until all users cease using the tower for the prescribed period.

2. Upon receiving a special use permit approval from the Town Council and a building permit, prior to the commencement of installation and/or construction of such facility or any part thereof, the applicant shall file with the Town a bond for a length of no less than three (3) years in an amount equal to or exceeding the estimate of the cost of removal of the facility and all associated structures, fencing, power supply, and other appurtenances connected with the facility. The bond must be provided within thirty (30) days of the approval date and before any installation or construction begins.

Replacement bonds must be provided ninety (90) days prior to the expiration of any previous bond.

At any time the Town has good cause to question the sufficiency of the bond at the end of any three-year (3) period, the owner and/or operator of the facility, upon request by the Town, shall provide an updated estimate and bond in the appropriate amount.

Failure to keep the bonds in effect is cause for the removal of the facility at the owner's expense. Each facility will require a separate bond, regardless of the number of owners or location.

B. *State or Federal Requirements.*

1. Compliance with state and federal requirements. All towers must meet or exceed current standards and regulations of the FAA, the FCC, and any other agency of the state or federal government with the authority to regulate towers and antennas. If such standards

and regulations are changed, then the owners of the towers and antennas governed by this chapter shall bring such towers and antennas into compliance with such revised standards and regulations within six (6) months of the effective date of such standards and regulations, unless a different compliance schedule is mandated by the controlling state or federal agency. Failure to bring towers and antennas into compliance with such revised standards and regulations shall constitute grounds for the removal of the tower or antenna at the owner's expense.

2. Prohibition against illegally excessive emissions and RF testing.

As disclosed on the FCC's public internet website, personal wireless services facilities erected at any height under 200 feet are not required to be registered with the FCC.

Of even greater potential concern to the Town is the fact that the FCC does not enforce the RF radiation limits codified within the CFR by either: (a) testing the actual radiation emissions of wireless Facilities either at the time of their installation or at any time thereafter, or (b) requiring their owners to test them. See relevant excerpts from the FCC's public internet website annexed as Appendix 2.

This means that when wireless Facilities are constructed and operated within the Town, the FCC will have no idea where they are located and no means of determining, much less ensuring, that they are not exposing residents within the Town and/or the general public to Illegally Excessive levels of RF Radiation.

The Town deems it to be of critical importance to the health, safety, and welfare of the Town, its residents, and the public at large that personal wireless service facilities do not expose members of the general public to levels of RF radiation that exceed the limits which have been deemed safe by the FCC, and/or are imposed under CFR. The FCC has recognized that 47 U.S.C. § 332(c)(7)(B)(iv) permits state and local governments, when making decisions on the placement, construction, and modification of personal wireless service facilities, to consider whether such facilities comply with the Commission's regulations concerning RF emissions. In re Human Exposure to Radiofrequency Electromagnetic Fields et al., 34 FCC Rcd 11687, 11739, ¶114 (2019).

In accord with the same, the Town enacts the following RF Radiation testing requirements and provisions set forth herein below.

No wireless telecommunications facility shall at any time be permitted to emit illegally excessive RF Radiation as defined in §17-2 or to produce power densities that exceed the legally permissible limits for electric and magnetic field strength and power density for transmitters, as codified within 47 CFR §1.1310(e)(1), Table 1 Sections (i) and (ii), as made applicable pursuant to 47 CFR §1.1310(e)(3) unless the operator implements and retains responsibility for ongoing effectiveness of the mitigation actions contained in 47 C.F.R. §1.1307(b)(4).

To ensure continuing compliance with such limits by all owners and/or operators of wireless communication facilities within the Town, all owners, and operators of wireless communication facilities shall submit reports as required by this section.

As set forth hereinbelow, the Town may additionally require, at the owner and/or operator's expense, independent verification of the results of any analysis set forth within any reports submitted to the Town by the owner and/or operator.

If an operator of a personal wireless service facility fails to supply the required reports or fails to correct a violation of the legally permissible limits described hereinabove, following notification that their respective facility is believed to be exceeding such limits, any special use permit or other zoning approval granted by the Town Council or any other body or representative of the Town is subject to modification or revocation by the Town Council following a public hearing.

a. *Certification of Compliance with Applicable RF Radiation Limits.* Within forty-five (45) days of initial operation or a substantial modification of a wireless communication facility, the owner and/or operator of each telecommunications antenna shall submit to the Development Services Director a written certification by a licensed professional engineer, sworn to under penalties of perjury, that the facility's radio frequency emissions comply with the limits codified within 47 CFR §1.1310(e)(1), Table 1 Sections (i) and (ii), as made applicable pursuant to 47 CFR §1.1310(e)(3).

The engineer shall also measure the emissions of the approved wireless facility, including the cumulative impact from other nearby wireless facilities, and determine if such emissions are within the limits described hereinabove.

A report of these measurements and the engineer's findings with respect to compliance with the FCC's maximum permissible exposure (MPE) limits shall be submitted to the Development Services Director.

If the report shows that the facility does not comply with applicable limits, then the owner and/or operator shall cease operation of the facility until the facility is brought into compliance with such limits. Proof of compliance shall be a certification provided by the engineer who prepared the original report. The Town may require, at the applicant's expense, independent verification of the results of the analysis.

b. *Random RF Radiofrequency Testing.* At the operator's expense, the Town may retain an engineer to conduct random unannounced RF radiation testing of such wireless facilities to ensure the facility's compliance with the limits codified within 47 CFR §1.1310(e)(1) et seq.

The Town may cause such random testing to be conducted as often as the Town may deem appropriate. However, the Town may not require the owner and/or operator to pay for more than one (1) test per facility per calendar year unless such testing reveals that one (1) or more of the owner and/or operator's facilities are exceeding the limits codified within 47 CFR §1.1310(e)(1) et seq., in which case the Town shall be permitted to demand that the wireless facility be brought into compliance with such limits, and to conduct additional tests to determine if, and when, the owner and/or operator thereafter brings the respective wireless facility and/or facilities into compliance.

If the Town at any time finds that there is good cause to believe that a personal wireless service facility and/or one or more of its antennas are emitting RF radiation at levels in excess of the legal limits permitted under 47 CFR §1.1310(e)(1) et seq., then a hearing shall be scheduled before the Town Council at which the owner and/or operator of such facility shall be required to show cause why any and all permits and/or approvals issued by the Town for such facility and/or facilities should not be revoked, and a fine should not be assessed against such owner and/or operator.

Such hearing shall be duly noticed to both the public and the owner and/or operator of the respective facility or facilities at issue. The owner and/or operator shall be afforded not less than two (2) weeks' written notice by first-class mail to its Notice Address.

At such hearing, the burden shall be on the Town to show that, by a preponderance of the evidence, the Facilities emissions exceeded the permissible limits under 47 CFR §1.1310(e)(1) et seq.

In the event that the Town establishes same, the owner and/or operator shall then be required to establish, by clear and convincing evidence, that a malfunction of equipment caused their failure to comply with the applicable limits through no fault on the part of the owner/operator.

If the owner and/or operator fails to establish same, the Town Council shall have the power to and shall revoke any special use permit, variance, building permit, and/or any other form of zoning-related approval(s) which the Town Council, Board of Adjustment, Town Engineer and/or any other representative of the Town may have then issued to the owner and/or operator, for the respective facility.

In addition, the Town may issue a civil citation of not less than $1,000, nor more than $5,000 for such violation of subparagraph 1. hereinabove, or, in the case of a second offense within less than five (5) years, a minimum fine of $5,000, nor more than $25,000.

In the event that an owner or operator of one or more personal wireless service facilities is found to violate subparagraph 1. hereinabove three or more times within any five (5) year period, then in addition to revoking any zoning approvals for the facilities which were violating the limits codified in 47 CFR §1.1310(e)(1) et seq., the Town Council shall render a determination within which it shall deem the owner/operator prohibited from filing any applications for any new wireless personal services facilities within the Town for a period of five (5) years.

c. *Annual Testing*. The owner or operator of all PWSF shall provide for and conduct an inspection of radio frequency radiation at least once annually by a licensed radio frequency engineer. Three copies of a report shall be provided to the Development Services Department, verifying that the radio frequency radiation is in compliance with FCC Guidelines.

3. *Actions for Noncompliance.* If the Town at any time finds that there is good cause to believe that a wireless communication facility and/or one (1) or more of its antennas are emitting RF radiation at levels in excess of the legal limits permitted under 47 CFR

§1.1310(e)(1) et seq., then a hearing shall be scheduled before the Town's Zoning Administrator at which the owner and/or operator of such facility shall be required to show cause why any and all permits and/or approvals issued by the Town for such facility and/or facilities should not be revoked, and a fine should not be assessed against such owner and/or operator.

The owner and/or operator shall be afforded not less than two (2) weeks' written notice of the hearing.

At such hearing, the burden shall be on the Town to show that, by a preponderance of the evidence, the facilities emissions exceeded the permissible limits under 47 CFR §1.1310(e)(1) et seq.

In the event that the Town establishes same, the owner and/or operator shall then be required to establish, by clear and convincing evidence, that a malfunction of equipment caused their failure to comply with the applicable limits through no fault on the part of the owner/operator.

If the owner and/or operator fails to establish same, the Town shall have the power to revoke any permit, building permit, and/or any other form of approval(s) which the Town Council or any other representative of the Town may have then issued to the owner and/or operator, for the respective facility. The Zoning Administrator may revoke an administrative approval. The decision of the Zoning Administrator may be appealed to the Town Manager. If the tower or antenna was approved by the Town Council, revocation will be considered by the Town Council in the same manner as the original approval.

In addition, the Town may issue a civil citation for noncompliance as provided in Section 1-8-3 of the Town Code.

In the event that an owner or operator of one (1) or more wireless communication facility is found to violate subsection (B)(1) of this section three (3) or more times within any five (5) year period, then in addition to revoking any zoning approvals for the facilities which were violating the limits codified in 47 CFR §1.1310(e)(1) et seq., the Town Council shall render a determination within which it shall deem the owner/operator prohibited from filing any applications for any new wireless personal services facilities within the Town for a period of five (5) years.

C. *Building Codes; Safety Standards.* To ensure the structural integrity of towers, the owner of a tower shall ensure that it is maintained in compliance with standards contained in applicable state or local building codes and the applicable standards for towers that are published by the Electronic Industries Association, as amended from time to time. If, upon inspection, the Town of Fountain Hills concludes that a tower fails to comply with such codes and standards and constitutes a danger to persons or property, then upon notice being provided to the owner of the tower, the owner shall have thirty (30) days to bring such tower into compliance with such standards. Failure to bring such tower into compliance within said thirty (30) days shall constitute grounds for the removal of the tower or antenna at the owner's expense.

D. *Noise.* Wireless facilities and all related equipment must comply with all noise regulations and shall not exceed such regulations, either individually or collectively. Backup generators shall only be operated during power outages and/or for testing and maintenance purposes between the hours of 9:00 a.m. and 4:00 p.m.

E. *Maintenance*. Prior to scheduling a final inspection for construction of a tower and associated equipment, the applicant shall file with the Town a bond in the amount of X to cover the ongoing maintenance of the tower, equipment, and landscaping. The bond amount shall be reviewed and revised every three years thereafter. Should the owner of the tower, equipment, and/or landscaping fail to maintain said facilities consistent with the Town's approval and ordinance requirements, and after notice for correction by the Town, the Town may call and utilize the bonds to perform the needed maintenance activities.

F. Indemnity and liability for damages.

1. The wireless telecommunications facility provider shall defend, indemnify, and hold harmless the Town or any of its boards, commissions, agents, officers, and employees from any claim, action or proceeding against the Town, its boards, commission, agents, officers, or employees to attack, set aside, void, or annul, the approval of the project when such claim or action is brought within the time period provided for in applicable state and/or local statues. The Town shall promptly notify the provider(s) of any such claim, action or proceeding if the Town bears its own attorney's fees and costs, and the Town defends the action in good faith.

2. Wireless telecommunications facility operators shall be strictly liable for interference caused by their facilities with Town communications systems. The operator shall be

responsible for costs for determining the source of the interference, all costs associated with eliminating the interference (including but not limited to filtering, installing cavities, installing directional antennas, powering down systems, and engineering analysis), and all costs arising from third party claims against the Town attributable to the interference.

G. *Certificate of Insurance required*. The applicant shall maintain adequate and sufficient liability insurance during the construction period and thereafter, the carrier shall maintain liability insurance, issued by an insured authorized to do business in the State of Arizona meeting the criteria of this section throughout the life of any PWSF erected within the Town of Fountain Hills, at least as broad as follows:

1. Commercial General Liability Insurance. The permittee shall procure and maintain at its expense or cause its contractor or subcontractor to procure and maintain throughout the term of this permit, commercial General Liability ("CGL") insurance on an "occurrence" basis, with limits not less than $2,000,000 per occurrence per wireless carrier or $4,000,000 per wireless carrier in the aggregate. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project location or the general aggregate limit shall be twice the required occurrence limit. CGL insurance must include coverage for the following: Bodily Injury and Property Damage; Personal Injury/Advertising Injury; Premises/Operations Liability; Products/Completed Operations Liability; Aggregate Limits that Apply per Project; Explosion, Collapse and Underground ("UCX") exclusion deleted; Contractual Liability with respect to the permit; Broad Form Property Damage; and Independent Consultants Coverage. The policy shall contain no endorsements or provisions limiting coverage for (i) contractual liability; (ii) cross liability exclusion for claims or suits by one insured against another; (iii) products/completed operations liability; (iv) bodily injury or damage from RF exposure at levels exceeding the FCC limits; or (v) contain any other exclusion contrary to the conditions in this permit.

5. Environmental Pollution Liability Insurance. The permittee shall procure and maintain at its expense or cause its contractor or subcontractor to procure and maintain throughout the term of this permit, Contractors Pollution Liability Insurance including contractual liability coverage to cover liability and legal expenses arising out of cleanup, removal, storage, or handling of hazardous or toxic chemicals, materials, substances, or any other pollutants by the permittee or any subcontractor resulting from pollution

conditions associated with the personal wireless services facility in an amount not less than $1,000,000 each occurrence combined single limit for bodily injury and property damage.

6. Umbrella Policy. If an umbrella or excess liability insurance policy is used to satisfy the minimum requirements for insurance coverage listed above, the umbrella or excess liability policies shall provide coverage at least as broad as specified for the underlying coverages and covering those insured in the underlying policies. Coverage shall be "pay on behalf," with defense costs payable in addition to policy limits. Permittee shall provide a "follow form" endorsement or schedule of underlying coverage satisfactory to the Town indicating that such coverage is subject to the same terms and conditions as the underlying liability policy.

7. Endorsements. The relevant policy(ies) shall name the Town, its elected/appointed officials, commission members, officers, representatives, agents, volunteers and employees as additional insureds. The permittee shall use its best efforts to provide thirty (30) days' prior notice to the Town of the cancellation or material modification of any applicable insurance policy.

8. Verification of Coverage. Permittee shall furnish the Development Services Department with original certificates and amendatory endorsements or copies of the applicable policy language providing the insurance coverage required herein. All certificates and endorsements are to be received and approved by the Development Services Department before any work commences. However, failure to obtain required documents prior to the work beginning shall not waive the Licensee's obligation to provide them. Permittee shall furnish updated certificates and endorsements to the Town annually. The Town reserves the right to require updated certificates and endorsements or complete, certified copies of all required insurance policies, including the endorsements required herein, at any time.

9. Permittee Has Full Liability: The permittee shall assume full liability for damage or injury caused to any property or person by the personal wireless services facility.

10. Permittee shall provide an executed agreement, pursuant to which Permittee and any related third parties agree to defend, hold harmless and fully indemnify the Town, its officers, employees, agents, attorneys, and volunteers, from (i) any claim, action or

proceeding brought against the Town or its officers, employees, agents, or attorneys to attack, set aside, void, or annul any such approval of the Town or (ii) a successful legal action brought against the Town for loss of property value or other harm caused by the placement or operation of a small cell installation. Such indemnification shall include damages, judgments, settlements, penalties, fines, defensive costs or expenses, including, but not limited to, interest, attorneys' fees and expert witness fees, or liability of any kind related to or arising from such claim, action, or proceeding whether incurred by the Permittee, the Town and/or the parties initiating or bringing such proceeding. The agreement shall also include a provision obligating the Permittee to indemnify the Town for all of the Town's costs, fees and damages which the Town incurs in enforcing the indemnification provisions of this Section.

H. ADA Accommodations. The Town seeks to comply with the Americans With Disabilities Act, and shall comply with same in the event that any person who is disabled within the meaning of the Act seeks a reasonable accommodation, to the extent they are entitled to same under the Act.

I. Decommissioning and Reclamation Plan shall include the following information:

1. A plan for disposal of all solid waste, special waste and hazardous waste in accordance with local, state, and federal waste disposal regulations detailing the types and quantities of waste materials and methods of disposal;

2. A description of how and on what schedule stabilization and re-vegetation of the site as deemed necessary to minimize erosion will be accomplished. Permittee should include, to the extent possible, restoration of native vegetation, and pollinator-friendly seed mixtures shall be used to the maximum extent possible in re-vegetation of ground cover;

3. An estimate of costs for the decommissioning of the personal wireless services facility with a detailed description of how the estimated costs were derived, including the date which was the basis for the estimate;

4. A decommissioning plan signed by the party responsible for decommissioning and the landowner (if different) whose minimum requirements meet the standards of this

Ordinance. Such plan must be filed in the Town Office prior to the first operation of the personal wireless services facility;

5. An estimate of the total cost of decommissioning value of the equipment and itemization of the estimated major expenses, including the projected costs of measures taken to minimize or prevent adverse effects on the environment during the implementation of the decommissioning plan.

Section 17.07 Nonconforming Uses

A. *Not Expansion of Nonconforming Use.* Towers that are constructed, and antennas that are installed, in accordance with the provisions of this chapter shall not be deemed to constitute the expansion of a nonconforming use or structure.

B. *Pre-existing Towers.* Pre-existing towers shall be allowed to continue their usage as they presently exist. Routine maintenance (including replacement with a new tower of like construction and height) shall be permitted on such pre-existing towers. New construction other than routine maintenance on a pre-existing tower shall comply with the requirements of this chapter.

C. *Rebuilding Damaged or Destroyed Nonconforming Towers or Antennas.* Notwithstanding other provisions of this chapter, bona fide nonconforming towers or antennas that are damaged or destroyed may be rebuilt without having to first obtain a special use permit and without having to meet the separation requirements specified in Section 17.03. The type, height, and location of the tower on site shall be of the same type and intensity as the original facility approval; provided, however, that any destroyed lattice or guyed tower shall be replaced with a monopole structure only. Building permits to rebuild the facility shall comply with the then applicable building codes and shall be obtained within ninety (90) days from the date the facility is damaged or destroyed. If no permit is obtained or if said permit expires, the tower or antenna shall be deemed abandoned as specified in Section 17.06(A).

Section 17.08 Retention of Consultants

A. Use of Consultants

Where deemed reasonably necessary by the Town Council and/or the Town, the Town Council and/or the Town may retain the services of professional consultants to assist the Town in carrying out its duties in review and approval of personal wireless service facilities. Where the Town Council uses the services of private engineers, attorneys, or other consultants for purposes of engineering, scientific, land use planning, environmental, legal, or similar professional reviews of the adequacy or substantive aspects of applications or of issues raised during the course of review of applications for special use permit approvals of personal wireless service facilities, the applicant and landowner, if different, shall be jointly and severally responsible for payment of all the reasonable and necessary costs incurred by the Town for such services. That responsibility shall not exceed the actual cost to the Town of such engineering, legal, or other consulting services.

B. Advance Deposits for Consultant Costs

The Town and/or Town Council may require advance periodic monetary deposits held by the Town on account of the applicant or landowner to secure the reimbursement of the Town's consultant expenses. The Town Council shall establish policies and procedures for the fixing of deposits and the management of payment from them. After the review and approval of itemized invoices by the Development Services Director, or designee, as to the reasonableness and necessity of the consultant charges, the Town may make payments from the deposited monies for engineering, legal, or consultant services. Upon receiving a request by the applicant or landowner, the Town shall supply copies of such invoices to the applicant and/or landowner reasonably in advance of review and approval, appropriately redacted where necessary to shield legally privileged communications between Town officers or employees and the Town's consultant. When it appears that the remaining deposit held for the applicant or landowner by the Town may be insufficient to pay current or anticipated invoices, the Town shall cause the applicant or landowner to deposit additional monies to meet such expenses or anticipated expenses in accordance with policies and procedures established by the Town Council. Consultants shall undertake no review on any matter scheduled before the Town until the initial deposit has been made or requested replenishment of the deposit has been made. No reviewing agency shall be obligated to proceed unless the applicant complies with deposit requirements.

C. Reasonable Limit Upon Consultant Expenses

A consultant expense or part thereof is reasonable in amount if it bears a reasonable relationship to the customary fee charged by engineers, attorneys, or planners within the region for services performed on behalf of applicants or reviewing boards in connection with comparable applications for land use or development.

The Town may also take into account any special conditions for consideration as it may deem relevant, including but not limited to the quality and timeliness of submissions on behalf of the applicant and the cooperation of the applicant and agents during the review process.

A consultant expense or part thereof is necessarily incurred if it was charged by the engineer, attorney or planner, or other consultants for a service that was rendered to assist the Town in: (a) making factual determinations consistent with the goals of protecting or promoting of the health, safety or welfare of the Town or its residents; (b) assessing potential adverse environmental impacts such as those identified within an ADEQ process; (c) accessing potential adverse impacts to historic properties, structures and/or districts, and/or (d) assessing and determining factual issues relevant to Effective Prohibition claims, as addressed herein, enabling the Council to best comply with the letter and intent of the provision of the TCA which is relevant thereto.

D. Audits Upon the Request of an Applicant

Upon request of the applicant or landowner, the Town Council shall review all invoices and determine whether such engineering, legal, and consulting expenses are reasonable in amount and necessarily incurred by the Town in connection with the review and consideration of an application for personal wireless service facility. In the event of such a request, the applicant or landowner shall be entitled to be heard by the Town Council on reasonable advance notice.

E. Liability for Consultant Expenses

For a land-use application to be complete, the applicant shall provide the written consent of all owners of the subject real property, both authorizing the applicant to file and pursue land development proposals and acknowledging potential landowner responsibility, under this section, for engineering, legal, and other consulting fees incurred by the Town. If different from the applicant, the owner(s) of the subject real property shall be jointly and severally responsible for reimbursing the Town for funds expended to compensate services rendered to the Town under this section by private engineers, attorneys, or other consultants. The applicant and the

owner shall remain responsible for reimbursing the Town for its consulting expenses, notwithstanding that the deposit account may be insufficient to cover such expenses. No building permit or other permit shall be issued until reimbursement of costs and expenses determined by the Town to be due. In the event of failure to reimburse the Town for such fees, the following shall apply:

The Town may seek recovery of unreimbursed engineering, legal, and consulting fees by court action in an appropriate jurisdiction, and the defendant(s) shall be responsible for the reasonable and necessary attorney's fees expended by the Town in prosecuting such action.

Alternatively, and at the sole discretion of the Town, a default in reimbursement of such engineering, legal, and consulting fees expended by the Town shall be remedied by charging such sums against the real property that is the subject of the application by adding that charge to and making it a part of the next annual real property tax assessment roll of the Town. Such charges shall be levied and collected simultaneously and in the same manner as Town-assessed taxes and applied in reimbursing the fund from which the costs were defrayed for the engineering, legal, and consulting fees. Prior to charging such assessments, the owners of the real property shall be provided written notice to their last known address of record by certified mail, return receipt requested, of an opportunity to be heard and object before the Town Council to the proposed real property assessment, at a date to be designated in the notice, which shall be no less than 30 days after its mailing.

Article 16-2 Small Wireless Facilities

Section 16-2-1 Purpose

A. The intent and purpose of this article are as follows:

1. To establish clear guidelines and standards for the siting, location, compatibility, structural integrity, and design of small wireless facilities that promote the availability of adequate public services while minimizing negative impacts of facilities on surrounding land uses and ensuring compatibility with adjacent land uses.

2. To employ the "General Authority" preserved to the Town under 47 U.S.C. § 332(c)(7)(A) to the greatest extent the United States Congress intended while simultaneously complying with each of the substantive and procedural requirements set forth within the subsection 47 U.S.C. § 332(c)(7)(B).

3. To employ the authority reserved under A.R.S. §§ 9-583.A, and 9-596.A to manage the Town's public highways, permit and manage access to the Town's public rights of way, exercise its zoning powers, land use, planning and permitting authority and exercise its police powers.

4. To implement Town regulations related to the provision of wireless telecommunications services, and the siting of their small wireless facilities.

5. To assure compliance with the Federal Communications Commission's (FCC) legislative rules for Communication Facilities including those for Radio Frequency human exposure limits in 47 C.F.R. Part 1, Subpart I and those addressing State and Local Government Regulation of the Placement, Construction, and Modification of Personal Wireless Service Facilities, in 47 C.F.R. Part 1, Subpart U.

6. To promote the community interest by (1) ensuring the balance between public and private interests is maintained; (2) protecting the Town of Fountain Hill's visual character from potential adverse impacts and visual blight created or exacerbated by small and micro wireless facilities and related infrastructure; (3) protecting and preserving the Town's environmental resources; (4) protecting and preserving the Town's public

rights-of-way; and (5) promoting access to high-quality, advanced wireless services for the Town’s residents, businesses, and visitors.

7. Ensure that all telecommunications carriers providing facilities or services within the Town comply with the Fountain Hills Town Code.

8. Encourage the collocation of small wireless facilities, thus helping to minimize adverse impacts on the community;

9. Recognize that technology and laws regarding these facilities have changed, so the Town’s regulations need to change accordingly;

10. Promote the health, safety, and general welfare of the people of Fountain Hills Town.

11. Maintain the Town’s status as a designated International Dark Sky Community and an optimum environment for stargazing.

12. Conserve and enhance the unique natural beauty, irreplaceable natural resources, historical, natural, and man-made character and appearance of Fountain Park, McDowell Mountain Preserve, Pleasantville Park, and views of Red Mountain and Four Peaks.

13. Protect Saguaro cacti as a unique natural resource promoting tourism, contributing to the aesthetic well-being of the community, high property values, high quality of life, unique lifestyles, and providing habitat protection for desert wildlife. Saguaro cacti grow slowly and cannot be replaced by a plant of like character.

14. Protect the quiet small-town suburban, scenic and visual character of the Town.

B. This Section is not intended to, nor shall it be interpreted or applied to:
(1) prohibit or effectively prohibit any wireless telecommunications service provider's ability to provide reasonable and necessary wireless communications services;
(2) prohibit or effectively prohibit any entity's ability to provide reasonable and necessary interstate or intrastate telecommunications service;
(3) unreasonably discriminate among providers of functionally equivalent services;
(4) deny any request for authorization to place, construct or modify wireless telecommunications service facilities solely on the basis of environmental effects of radio frequency emissions so long as such wireless facilities comply in every instance and regard with all FCC's regulations concerning such emissions;
(5) prohibit any eligible facility that the Town may not deny under federal or state law; or

(6) otherwise authorize the Town to violate any applicable federal or state law.

Section 16-2-2 Definitions

As used in this article, the following terms shall have the meanings set forth below.

A. “Accessory equipment or antenna equipment” means equipment other than antennas used in connection with a small wireless facility or other infrastructure deployment. This includes but is not limited to, equipment, switches, wiring, cabling, power sources, shelters or cabinets associated with an antenna, located at the same fixed location as the antenna, and, when collocated on a structure, is mounted or installed at the same time as such antenna. For purposes of an eligible facilities request as defined at 47 C.F.R. §1.6100(b)(3) only, the term includes "transmission equipment" as defined in 47 CFR. § 1.6100(b)(8), as may be amended or superseded.

B. “Accessory facility or accessory structure” means a facility or structure serving or being used in conjunction with a personal wireless services facility or complex and located on the same property or lot as the personal wireless services facility or complex, or an immediately adjacent lot including, but not limited to, utility or transmission equipment, storage sheds or cabinets.

C. “ACHP” means the Federal Advisory Council on Historic Preservation.

D. “Adjacent properties or properties adjacent” shall mean (i) those lots or parcels of land that abut another lot or parcel of land or public right-of-way that is contiguous to a wireless facility site or proposed site and (ii) the lots or parcels of land or public right-of-way that would be contiguous to lots or parcels or public rights-of-way but for an intervening local or collector roadway.

E. “ADEQ” means the Arizona Department of Environmental Quality.

F. “Aesthetic or aesthetics” refers to subjective or objective determinations related to whether and if so, how well a facility will fit within the character of the area where the facility is proposed. This requires a broad range of factors including but not limited to visual effects and impact on property values. The Town will consider aesthetics for all applications and, where not prohibited by federal or state law, reserves the ability to impose careful placement conditions or restrictions.

G. “Alternative wireless facility structure” (also called “Concealment element”) can mean any feature or effort to minimize or eliminate the extent to which

the wireless facility can be noticed. Concealment elements include, but are not limited to stealth efforts like manmade trees, clock towers, bell steeples, light poles and similar alternative-design mounting structures not necessary to the operation of the facility that is intended to camouflage or obscure the presence of antennas, or towers, or base stations. Setback requirements can also constitute concealment elements. Alternative wireless facility structure or concealment is distinguished from other more aesthetic requirements intended to minimize the visual impact of a facility or an aesthetic locational directive to prevent unwanted visual impact.

H. "Antenna" means communications equipment that transmits or receives electromagnetic radio frequency signals and that is used in providing wireless services.

I. "Applicable codes" means uniform building, fire, electrical, plumbing or mechanical codes that are adopted by a recognized national code organization or local amendments to those codes that are enacted to address threats of destruction of property or injury to persons and to an extent that is not inconsistent with this article.

J. "Applicant" means any individual, corporation, limited liability company, general partnership, limited partnership, estate, trust, joint-stock company, association of two or more persons having a joint common interest, or any other entity submitting an application for a wireless communication facility permit, site plan approval, building permit, and/or any other related approval, for the installation, operation and/or maintaining of one or more wireless communication facilities.

K. "Application" shall mean all necessary and required documentation, information, and evidence that an applicant must submit to receive a wireless communications facility permit, building permit, or other Town approval for personal wireless service facilities from the Town.

L. "ATSSA" means the American Traffic Safety Services Association.

M. "Authority" shall mean the Town of Fountain Hills, Arizona.

N. “Base station” means for purposes of eligible facilities requests, as defined in 47 C.F.R. §1.6100(b)(1), a structure or equipment at a fixed location that enables FCC-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower or any equipment associated with a tower.

O. “Backhaul facilities” means a physical transmission path, all or part of which is within the public rights-of-way controlled by the Town or any government entity, used for the transport of communications data by wire or fiber from a wireless facility to a network. A backhaul facility may also consist of an antenna, including a microwave antenna, installed in the public rights-of-way pursuant to a permit, used for the transport of communications data wirelessly from a wireless facility to a network.

P. "Cable operator" has the same meaning prescribed in A.R.S. § 9-505 and includes a video service provider. Cable operator does not include a special taxing district.

Q. “Clear zone” shall mean the roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. This area may consist of a shoulder, recoverable slope, non-recoverable slope, clear runout area, or combination thereof. The width of the clear zone is dependent upon the traffic volumes and speeds, and on the roadside geometry.

R. "Collocate" or "collocation" can have different meanings depending on context.

1. When and where A.R.S. §§ 9-951 — 9-600 apply, the definition in A.R.S. §§ 9-951.8 shall also apply. That definition currently states:

   "Collocate" or "collocation" means to install, mount, maintain, modify, operate or replace wireless facilities on, within or adjacent to a wireless support structure or utility pole.

2. Where and when the FCC’s general rules for placement, construction and modification of personal wireless facilities apply, the definition in 47 C.F.R. § 1.6002(g) shall apply. That definition currently states:

   Collocation, consistent with § 1.1320(d) and the Nationwide Programmatic Agreement (NPA) for the Collocation of Wireless Antennas, appendix B of this part, section I.B, means—

   a) Mounting or installing an antenna facility on a pre-existing structure; and/or

   b) Modifying a structure for the purpose of mounting or installing an antenna facility on that structure.

   c) The definition of “collocation” in § 1.6100(b)(2) applies to the term as used in that section.

3. Where and when the FCC's rules for wireless facility modifications apply, the definition in 47 C.F.R. § 1.6100(b)(2) shall also apply. That definition currently states:

   (2) Collocation. The mounting or installation of transmission equipment on an eligible support structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes.

S. For state law purposes, "Communications service" means cable service as defined in 47 United States Code section 522(6), information service as defined in 47 United States Code section 153(24), telecommunications service as defined in 47 United States Code section 153(53) or wireless service.

T. For state law purposes "Communications service provider" means a cable operator, a provider of information service as defined in 47 United States Code section 153(24), a telecommunications carrier as defined in 47 United States Code section 153(51) or a wireless services provider.

U. "Consolidated permit application" shall mean a single permit application that would otherwise require individual permit applications for the collocation of up to 25 small wireless facilities to existing utility poles within the public rights-of-way.

V. "DBM" (dBm) stands for decibel milliwatts, which is a concrete measurement of the wireless signal strength of wireless networks. It expresses power relative to 1 milliwatt (mW) on a logarithmic scale. Emissions are measured using positive whole or fractional numbers. Received signal strengths are typically recorded in negative numbers because they are usually weaker than 1 milliwatt, and can range from approximately -30 dBm to -110 dBm. The closer the number is to 0, the stronger the cell signal. FCC, HHS and OSHA regulate safe exposure thresholds but transmitter power (in dBm) is crucial to determining exposure, as it is the starting point for calculating current exposure limits.

W. "Development Services Director" or "Director" means the person appointed by the Town Manager to be the Development Services Director. If there is no such person designated by the Town Manager, the Town Manager is the Development Services Director.

X. "Distributed Antenna System" or "DAS" means a network of spatially separated antenna nodes connected to a common source via a transport medium that provides personal wireless service within a geographical area.

Y. "Eleventh hour submissions" means an applicant's submission of new and/or additional materials in support of an application and/or to cure deficiencies

in incomplete and denied applications within 48 hours of the expiration of an applicable shot clock, or at an otherwise unreasonably short period of time before the expiration of the shot clock, making it impracticable for the Town to adequately review and consider such submissions due to their complexity, volume, or other factors, before the expiration of the shot clock.

Z. "Eligible facilities request" means a request for modification (co‐location, removal or replacement of transmission equipment) as defined in 47 CFR § 1.6100(b)(3) of an existing base station wherein automatic approval of modifications that does not substantially change the physical dimensions of such tower or base station are mandated by 47 U.S.C. § 6409(b)(2), involving:

1. Collocation of new transmission equipment;

2. Removal of transmission equipment; or

3. Replacement of transmission equipment

AA. "Excavate or excavation" shall mean consistent with the definition contained in A.R.S. § 40-360.21.8, as it may be amended, any manmade cut, cavity, trench, or depression in the earth's surface, formed by removal of earth, intended to change the grade or level of land, or intended to penetrate or disturb the surface of the earth, including land beneath the surface water, as defined in A.R.S. § 45-101.9., and the term includes pipe bursting and directional drilling or boring from one point to another point beneath the surface of the earth, or other trenchless technologies.

BB. "Existing structure" means light poles, power poles, chimneys, billboards, and other similar structures, which are placed, within the Town at the time of adoption of this chapter, except existing buildings.

CC. "FCC" means the Federal Communications Commission.

DD. "FCC shot clock" means the presumptively reasonable time frame within which the Town must act on a wireless application, as defined by the FCC. The shot clock begins when the applicant takes the first procedural step that the Town requires.

1. Aggregate of 60 days:

   (a) Collocation of small wireless facilities at existing small wireless facility sites.

   (b) Eligible Facilities Requests.

2. Aggregate of 90 days:

(a) New small wireless facilities.

(b) Collocation applications for additions to existing communications facilities not defined as an eligible facilities request.

DD. "Fee" means a onetime charge.

EE. “General population/uncontrolled exposure limits” means the applicable radiofrequency radiation exposure limits set forth within 47 CFR §1.1310(e)(1), Table 1 Section (ii), made applicable pursuant to 47 CFR §1.1310(e)(3).

FF. “Historic property” shall mean any prehistoric or historic district, site, building, object or other real or personal property, of historical, architectural or archaeological value. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, engineering works, treasure troves, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, or culture of the Town.

GG. "Law" means any federal, state or local law, statute, common law, code, rule, regulation, order or ordinance.

HH. “Maintenance or routine maintenance” means plumbing, electrical or mechanical work that may require a building permit but that does not constitute a modification to the personal wireless service facility. It is work necessary to assure that a wireless facility and/or telecommunications structure exists and operates reliably and in a safe manner, presents no threat to persons or property, and remains compliant with the provisions of this chapter and FCC requirements.

II. "Monopole" means a wireless support structure that is not more than forty inches in diameter at the ground level and that has all of the wireless facilities mounted on the pole or contained inside of the pole.

JJ. "MUTCD" means the Manual on Uniform Traffic Control Devices, most recent edition, as published by the Federal Highway Administration.

KK. "Permit" means written permission required by an authority to install, mount, maintain, modify, operate or replace a utility pole or monopole, to collocate a small wireless facility on a utility pole or wireless support structure or to collocate wireless facilities on a monopole.

LL. “Permittee” means any person to whom a permit to place or maintain a wireless facility has been granted by the Town.

MM. "Person" means an individual, corporation, limited liability company, partnership, association, trust or other entity or organization, including an authority.

NN. “Personal wireless service” is as defined in 47 U.S.C. § 332(c)(7)(C)(i).

OO. “"Personal wireless service facilities are as defined in 47 U.S.C. § 332(c)(7)(C)(ii).

PP. "Private easement" means an easement or other real property right that is only for the benefit of the grantor and grantee and the grantor's or grantee's successors and assigns.

QQ. "Public street" means the full width of the right-of-way of any road, street, highway, lane or pedestrian walkway used by or for the general public, whether or not the road, street, highway, alley, lane or pedestrian right-of-way has been improved or accepted for maintenance by the Town.

RR. “RF” means radiofrequency.

SS. “RF” radiation means radiofrequency radiation, that being electromagnetic radiation which is a combination of electric and magnetic fields that move through space as waves, and which can include both non-ionizing radiation and ionizing radiation.

TT. "Rate" means a recurring charge.

UU. “Residential dwelling” means any dwelling unit that includes toilet or outhouse facilities, and facilities for food preparation and sleeping.

VV. “Residential property” means any property that contains a residential dwelling.

WW. “Residential property boundaries or school property boundaries” shall mean residential property boundaries and property boundaries containing a public, charter, or private school.

XX. "Right-of-way" means the area on, below or above a public roadway, highway, street, sidewalk, alley or utility easement. Right-of-way does not include a federal interstate highway, a state highway or state route under the jurisdiction of the department of transportation, a private easement, property that is owned by a special taxing district, or a utility easement that does not authorize the deployment sought by the wireless provider.

YY. “School” means a public, charter, or private educational institution providing instruction for elementary and secondary grades as defined in A.R.S. § 15-101 and includes the real property and facilities used for such educational purpose.

ZZ. “School property” means any parcel containing a public, charter, or private educational institution providing instruction for elementary and secondary grades as defined in A.R.S. § 15-101 and includes associated playgrounds, athletic fields, administrative buildings, parking areas, and other school-related facilities.

AAA. “Setback” means for the purposes of a small wireless facility permit application, a setback shall mean the distance between (a) any portion of a personal wireless facility and/or complex, including but not limited to any and all accessory facilities and/or structures, and (b) the exterior line of any parcel of real property or part thereof which is owned by, or leased by, an applicant seeking a small wireless facility permit to construct or install a personal wireless facility upon such real property or portion thereof. In the event that an applicant leases only a portion of real property owned by a landlord, the setback shall be measured from the facility to the line of that portion of the real property which is actually leased by the applicant, as opposed to the exterior lot line of the non-leased portion of the property owned by the landlord.

BBB. A setback will also mean the distance between the proposed facility and residential and school property boundaries. This distance shall be measured as the most direct, level, shortest straight line, without regard to intervening structures or objects, between the closest edge or corner of the residential or school property line.

CCC. “Shot clock, FCC” means the applicable period which is presumed to be a reasonable period within which the Town is generally required to issue a final decision upon an application seeking wireless facility permit approval for the installation, substantial modification, or collocation of a personal wireless services facility or structure, to comply with Section 47 U.S.C. §332(c)(7)(B)(ii) and A.R.S. §§ 9-593.F.3. and 9-594.C.3.

DDD. “Shot clock, Arizona” means the statutory timeframe within which the Town must act on a wireless application in the right-of-way pursuant to A.R.S. § 9-593.F.2. and § 9-594.C.3. before it is otherwise deemed approved pursuant to these statutory provisions. The Arizona shot clock begins on the date when the Town determines the application is properly completed.

EEE. "Small wireless facility" can have different meanings depending on context.

1. When and where A.R.S §§ 9-591 – 9-599 applies, the definition in A.R.S §§ 9-591.19 shall also apply. That definition means a wireless facility that meets both of the following qualifications:

   (a) All antennas are located inside an enclosure of not more than six cubic feet in volume or, in the case of an antenna that has exposed

elements, the antenna and all of the antenna's exposed elements could fit within an imaginary enclosure of not more than six cubic feet in volume.

(b) All other wireless equipment associated with the facility is cumulatively not more than twenty-eight cubic feet in volume, or fifty cubic feet in volume if the equipment was ground mounted before August 9, 2017. The following types of associated ancillary equipment are not included in the calculation of equipment volume pursuant to this subdivision:

(i) An electric meter.
(ii) Concealment elements.
(iii) A telecommunications demarcation box.
(iv) Grounding equipment.
(v) A power transfer switch.
(vi) A cutoff switch.
(vii) Vertical cable runs for the connection of power and other services.

2. Where and when the FCC's general rules for placement, construction and modification of personal wireless service facilities apply, the definition in 47 CFR §1.6002(l) shall apply. That definition states as follows:

(a) Small wireless facilities are facilities that meet each of the following conditions:

(i) The facilities—

i. Are mounted on structures 50 feet or less in height including their antennas as defined in § 1.1320(d); or

ii. Are mounted on structures no more than 10 percent taller than other adjacent structures; or

iii. Do not extend existing structures on which they are located to a height of more than 50 feet or by more than 10 percent, whichever is greater;

(ii) Each antenna associated with the deployment, excluding associated antenna equipment (as defined in the definition of "antenna" in § 1.1320(d)), is no more than three cubic feet in volume;

(iii) All other wireless equipment associated with the structure, including the wireless equipment associated with the antenna and

any pre-existing associated equipment on the structure, is no more than 28 cubic feet in volume;

(iv) The facilities do not require antenna structure registration under part 17 of this chapter;

(v) The facilities are not located on Tribal lands, as defined under 36 CFR 800.16(x); and

(vi) The facilities do not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in § 1.1307(b).

FFF. "Special taxing district" means a special district formed pursuant to title ARS 48, chapter 11, 12, 17, 18, 19, 20 or 22.

GGG. “Support structure” means pole, tower, base station, or other building, whether or not it has an existing antenna facility, that is used or to be used for the provision of personal wireless service.

HHH. “Thermal runway” means self-heating of an electrochemical system in an uncontrollable fashion.

III. “Tolling” or “tolled” means the pausing of the running of the time period permitted under the applicable shot clock for the respective type of wireless facility as per 47 CFR § 1.6003(a) and per A.R.S. § 9-594.C.3. by mutual agreement of the Town and applicant waiving the applicable timeframes in A.R.S. § 9-594.C.3.

JJJ. “Town council” or “council” means the town councilmembers of the town Fountain Hills.

KKK. “Undertaking” means any application seeking Council approval for the installation of a personal wireless services facility licensed under the authority of the FCC shall constitute an undertaking within the meaning of NEPA, in accord with 42 CFR §137.289 and 36 CFR §800.16.

LLL. “Utility” means Arizona (under ARS § 40-360.51 (5)): A public utility includes corporations or persons engaged in furnishing water, gas, electricity, telephone service, or sewage disposal to the public for compensation.

MMM. "Utility pole" means a pole or similar structure that is used in whole or in part for communications services, electric distribution, lighting or traffic signals. Utility pole does not include a monopole.

NNN. "Utility pole, Authority " means a utility pole that is owned or operated by an authority and that is in a right-of-way. Authority utility pole does not include a utility pole for electric distribution.

OOO. “Utility service antennas” means antenna placed on or near utility boxes, poles, switches, storage tanks, etc., and used by a utility provider to facilitate the operation of the utility system.

PPP. “Wireless carriers or carrier” means companies that provide Personal Wireless Services to end-use consumers.

QQQ. For state law purposes "Wireless facility":

1. Means equipment at a fixed location that enables wireless communications between user equipment and a communications network, including both of the following:

   (a) Equipment associated with wireless communications.

   (b) Radio transceivers, antennas, coaxial or fiber-optic cables, regular and backup power supplies and comparable equipment, regardless of technological configuration.

2. Includes small wireless facilities.

3. Does not include the structure or improvements on, under or within which the equipment is collocated, wireline backhaul facilities, coaxial or fiber-optic cable that is between wireless support structures or utility poles or coaxial or fiber-optic cable that is otherwise not immediately adjacent to, or directly associated with, an antenna.

4. Does not include Wi-Fi radio equipment described in A.R.S § 9-506, subsection I or microcell equipment described in A.R.S. § 9-584.E.

RRR. "Wireless infrastructure provider" means any person that is authorized to provide telecommunications service in this state and that builds or installs wireless communications transmission equipment, wireless facilities, utility poles or monopoles but that is not a wireless services provider. Wireless infrastructure provider does not include a special taxing district.

SSS. For state law purposes "Wireless provider" means a cable operator, wireless infrastructure provider or wireless services provider.

TTT. For state law purposes "Wireless services" means any services that are provided to the public and that use licensed or unlicensed spectrum, whether at a fixed location or mobile, using wireless facilities.

UUU. For state law purposes "Wireless services provider" means a person that provides wireless services. Wireless services provider does not include a special taxing district.

VVV. For state law purposes “Wireless support structure”:

1. Means:

(a) A freestanding structure, such as a monopole.

(b) A tower, either guyed or self-supporting.

(c) A sign or billboard

(d) Any other existing or proposed structure designed to support or capable of supporting small wireless facilities.

2. Does not include a utility pole.

Section 16-2-3 General Requirements

A. Lot size. For purposes of determining whether the installation of a facility or antenna complies with zoning district development regulations, including but not limited to setback requirements, lot coverage requirements, and other such requirements, the dimensions of the entire lot that portion of real property which is actually leased by the applicant, as opposed to the exterior lot line of the non-leased portion of the property, shall control.

B. Locational Standards. Small Wireless Facilities shall be sited to inflict the minimum adverse impacts upon individual residential or school properties either public, charter, or private that provide instruction to elementary and secondary grade-age children, and commercial properties that abut residential or school properties, and specifically, to minimize, to the greatest extent reasonably feasible, adverse aesthetic impacts upon residential homes or reductions in the property values of same. Small wireless facilities attached to pre-existing wooden and non-wooden poles shall conform to the following criteria. Proposed antenna and related equipment shall meet design standards which the Town may maintain and update as needed.

1. Facilities shall be located to minimize their visibility and the number of distinct facilities present as follows:

(a) No new facility(ies) shall be placed on an exposed ridgeline or to silhouette against the sky.

(b) No new facility(ies) shall be installed in a location that is not developed with wireless facilities or other resort, commercial, or industrial uses .

(c) No new facility(ies) shall be placed in a location readily visible from a public trail, public park, mountain view, or other developed outdoor recreation area.

2. Wireless facilities shall be set back from adjacent property lines as follows:

a. The setback requirement of the zoning district containing the use shall apply.
b. If the project parcel is adjacent to a zoning district with a more restrictive setback, the more restrictive setback shall apply to the proposed small wireless facility.
c. The setback shall be measured from that part of the facility(ies) that is closest to the neighboring property (i.e., the setback for a faux tree would be measured from the end of the branch closest to the neighboring property). In no instance may a facility be located such that its fall or debris zone extends to an abutting property.
d. Wireless communication facilities shall not be located anywhere that results in less than a 500-foot setback from the facility(ies) to a residentially zoned parcel, regardless of the zoning of the project parcel or the contagious parcels.

3. Collocation of new antennas on existing facility(ies) is strongly encouraged. Where appropriate to minimize visual impacts, new small wireless facilities will not be approved where collocation on existing facilities is technically feasible, will provide the desired service coverage, and would not result in alterations that create a greater visual impact.

4. Restricted site locations for small wireless facilities not collocated in the public right-of-way. All of the following locations will be deemed restricted site locations that require an exception pursuant to Section 16-2-10 of this Article:

(a) any location within a residential zone;

(b) any location within 500 feet from a residential dwelling unit;

(c) any location within 500 feet from a daycare facility or school; and

(d) any location within a public trail, park, or outdoor recreation area.

5. Location preferences. To better assist applicants and decision makers understand and respond to the community's aesthetic preferences and values, this subsection sets out listed preferences for locations to be used in connection with small wireless facilities in an ordered hierarchy. Applications that involve lesser-preferred locations may be approved so long as the applicant demonstrates by clear and convincing evidence in the written record that:

   (a) any more preferred locations or structures within 500 feet from the proposed site would be technically infeasible; and

   (b) if the proposed site or the most-preferred location within 500 feet from the proposed site is within a restricted site location, the applicant qualifies for an exception pursuant to Section 16-2-10. of this section. The Town of Fountain Hill prefers small wireless facilities to be installed in locations, ordered from most preferred to least preferred, as follows:

      (i) Collocated on an already existing facility;

      (ii) Locations within industrial districts;

      (iii) Locations within commercial zones;

      (iv) Locations within mixed use districts;

      (v) Any location not within 500 feet from any residential zone;

      (vi) Locations within residential zones

C. In the event that a proposed facility would be within 500 feet from two or more restricted site locations (as defined in Paragraph 4.), and the proposed facility qualifies for an exception pursuant to Section 16-2-10. of this code, the technically feasible location furthest from all such restricted site locations will be deemed to be the most preferred alternative. For discretionary permits the Town of Fountain Hills reserves the right to deny an application based on aesthetic or other locational considerations such as unacceptable impact on the characteristics of the impacted neighborhood or any other “safe harbor” allowed by 47 U.S.C. §§253(b)-(c) and/or 332(c)(7)(B)(i)(II) even if the applicant has proved that a denial would prohibit or effectively prohibit the provision of personal wireless service.

D. Accessory equipment for wireless facilities and wireless collocation facilities.

1. For facilities on private property, locations for accessory equipment in order of preference from most preferred to least preferred, accessory equipment for wireless communication facilities and wireless communications collocation

facilities shall be located underground, within a building or structure, on a screened roof top area or structure, or in a rear yard if not readily visible from surrounding properties and the roadway, unless the reviewing authority finds that another location is preferable under the circumstances of the application.

2. For facilities in the public right-of-way, accessory equipment shall be located underground.

E. Structures and facilities deployed by wireless providers pursuant to this section shall be constructed, maintained and located as to not obstruct, endanger or hinder the usual travel or public safety on the right-of-way, damage or interfere with any other utility facilities in the right-of-way or interfere with a utility's use of the utility's facilities in the right-of-way.

Section 16-2-4 Design Standards

A. Wireless facilities shall be designed in compliance with all applicable national and Arizona safety standards and to minimize visual, noise, and other impacts on the surrounding community and landscapes in accordance with the design standards in this section.

1. General design standards

(a) All facilities shall be engineered and certified by a Arizona-licensed structural engineer to withstand local seismic, wind, and loading conditions applicable to the site, and shall comply with wind and seismic load standards in accordance with International Building Codes as adopted by the Town of Fountain Hills and ANSI/TIA-222-H or its most current revision, National Electric Safety Code (NESC) standards, National Electrical Code (NEC) standards.

(b) Facilities shall be designed to minimize potential adverse impacts that may be inflicted or be likely to inflict upon nearby properties.

(c) The applicant shall employ screening and concealment design techniques in the design and placement of wireless facility(ies) and accessory equipment in order to ensure that the facility(ies) is as visually inconspicuous as possible, to prevent the facility(ies) from dominating the surrounding area and to hide the facility from predominant views from surrounding properties and viewsheds, all in a manner that achieves compatibility with the community and background landscapes and structures. Facilities and accessory

equipment shall be finished in non-glare colors and non-reflective surfaces and colors that minimize their visibility to the greatest extent possible.

(d) The visible exterior surface of wireless support facilities, i.e. vaults, equipment rooms and equipment enclosures, shall be designed to be visually compatible with structures typically found in the vicinity of the project site.

(e) No facility shall be lighted except where required FCC lighting is necessary and must comply with the Town's Outdoor Lighting Control Ordinance. No exterior lighting shall spill from the site in an unnecessary manner. If required, lighting for facilities shall be limited as follows:

i. All approved lighting shall be shielded or directed on site to minimize off-site light spill.

ii. In all zones, lighting shall be limited to Security lighting that is manually operated or motion-detector controlled.

f. Signage shall be limited to required address and facility identification signs, emergency and safety hazard signage.

g. All collocated and multiple-user facilities shall be designed to promote facility and site sharing where feasible, including parking areas, access roads, utilities and equipment.

2. The collocation, installation, modification, maintenance, and replacement of monopoles, utility poles associated with small wireless facilities in the public right-of-way shall be subject to and comply with the Town's Design Standards and Guidelines, and any site-specific requirements developed based upon consultation with the Town through the site review and permitting process.

3. Small wireless facilities located on private property shall comply with the following design standards:

(a) Facilities designed as an integral part of the structure are strongly encouraged within all commercial and industrial districts.

(b) Antennas: Wall-mounted antennas and antenna equipment, including but not limited to radios, cables, associated shrouding, disconnect boxes, meters, microwaves, and conduit, shall be mounted as close

to the wall as technically feasible and shall not extend more than four feet from the face of the wall nor consume more than fifty (50 sq. ft.) square feet per building face, excluding mountings. Pole-mounted antennas, and antenna equipment, including but not limited to radios, cables, associated shrouding, disconnect boxes, meters, microwaves, and conduit, shall be mounted as close to the pole as technically feasible.

(c) Fencing and screening of wireless facilities.

(i) Base stations shall be screened from adjacent public rights of way, public trails, public recreation areas, places of public gathering, open spaces, and adjacent properties by landscaping with native species or other means, in alignment with Section 19.05 of the Fountain Hills Town Zoning Ordinance.

(ii) All areas disturbed during project construction shall be replanted with vegetation as required by Section 6.05 of the Town's Subdivision Ordinance and approved during plan review.

(iii) Existing trees and other screening vegetation in the vicinity of the facility and along the access or utility easements, shall be preserved to the maximum extent possible and protected from damage during construction.

(iv) No razor wire or barbed wire shall be permitted on any chain link fencing.

Section 16-2-5 Application Submission Requirements

A. Consolidated applications. The applicant may submit up to 25 individual applications for collocations of small wireless facilities permits in a consolidated application; provided, however, that the small wireless facilities in a consolidated application must be proposed with substantially the same equipment in the same configuration on the same support structure type. Each application in a consolidated application must meet all the requirements for a complete application, which includes without limitation the application fee for each application in the consolidated application. If any application in a consolidated application is incomplete, the Town, in the Town's discretion, shall determine whether the entire consolidated application shall be deemed incomplete. If any application is withdrawn or deemed withdrawn from a consolidated application, the Town shall

determine whether the entire consolidated application shall be deemed withdrawn. If any application in a consolidated application fails to meet the required findings for approval, the Town shall determine whether the entire consolidated application is denied.

B. General application requirements. All permit applications for small wireless facilities must include the following information and materials:

1. Application form duly completed and executed in a manner specified by the Town.

2. A statement by the applicant stating whether applicant intends to claim Effective Prohibition in the event of a permit denial. If applicant intends to claim Effective Prohibition, applicant must attach a written Notice Of Effective Prohibition explaining how a significant gap in coverage exists and why the proposed location is the least intrusive alternative to remedy said gap.

3. Proof of authorization of structure occupancy. The applicant must submit a written copy of proof that the applicant is authorized to install its facility(ies) on the support structure such as a utility pole, streetlight, or other structure, as applicable.

4. Drawn-to-scale depictions of the wireless facilities and equipment. If the proposed facility is a small wireless facility, the drawn-to-scale depiction shall include complete calculations for all of the antennas and equipment of which the facility will be comprised, depicting that, when completed, the installation and equipment will meet the physical size limitations which enable the facility to qualify as a small wireless facility.

5. Construction drawings that depict all the existing and proposed improvements, equipment and conditions related to the proposed project, which includes without limitation any and all poles, posts, pedestals, traffic signals, towers, streets, sidewalks, pedestrian ramps, driveways, curbs, gutters, drains, handholes, manholes, fire hydrants, equipment cabinets, antennas, cables, trees and other landscape features. The construction drawings must:

   (a) contain cut sheets that contain the technical specifications for all existing and proposed antennas and accessory equipment, which includes without limitation the manufacturer, model number and physical dimensions;

(b) identify all potential support structures within 50 feet from the proposed project site and call out such structures' overall height above ground level;

(c) depict the applicant' s preliminary plan for electric and data backhaul utilities, which shall include the anticipated locations for all conduits, cables, wires, handholes, junctions, transformers, meters, disconnect switches, and points of connection; and

(d) demonstrate that proposed project will be in full compliance with all applicable health and safety laws, regulations or other rules, which includes without limitation all applicable codes and public utility regulations and orders.

6. Site survey. A survey prepared, signed and stamped by a licensed or registered engineer. The survey must identify and depict all existing boundaries, encroachments and other structures within 75 feet from the proposed project site and any new improvements, which includes, as applicable, without limitation all:

(a) traffic lanes;

(b) all private properties and property lines;

(c) (iii) above and below-grade utilities and related structures and encroachments;

(d) fire hydrants, roadside call boxes and other public safety infrastructure;

(e) streetlights, decorative poles, traffic signals and permanent signage;

(f) sidewalks, driveways, parkways, curbs, gutters and storm drains;

(g) benches, trash cans, mailboxes, kiosks and other street furniture; and

(h) existing trees, planters and other landscaping features.

7. Photo simulations. Site photographs and photo simulations that show the existing location and proposed small wireless facility in context from at least three vantage points within the public streets or other publicly accessible spaces, together with a vicinity map that shows the proposed site location and the photo location for each vantage point. At least one simulation must depict the small wireless facility from a vantage point approximately 50 feet from the proposed support structure or location. The

photo simulations and vicinity map shall be incorporated into the construction plans submitted with the application. The photo simulations must show all required elements of the facility that will be visible and shall be based on actual site photographs.

8. Fire safety. A Fire Safety Plan that includes a general description of the personal wireless services facility for purposes of ensuring the Fire Department is fully informed and prepared in case of a fire. The Fire Safety Plan shall include:

   (a) Location of all Fire Safety Plan documents.

   (b) Location of the facility's alarm panel.

   (c) List of emergency contacts.

   (d) Specific responsibilities assigned to designated personnel.

   (e) Location of signal-processing equipment.

   (f) Location and listing of types of power equipment, including rectifiers, inverters, distribution cabinets, bus bars, cables, and communications raceways.

   (g) Listing and location of batteries, including description of quantities and types of batteries, specifying whether batteries are lithium-ion, nickel cadmium, sodium-nickel, valve-regulated lead acid, and/or vented, and description of any associated exhaust ventilation system(s).

   (h) Description of actions to detect and prevent thermal runaway events.

   (i) Description of whether the facility will be located in a lightning-prone area. If the facility is to be located in a lightning-prone area, description of how the facility shall comply with NFPA 780 Standard for the Installation of Lightning Protection Systems;

   (j) Description of location and types of fuses used to ensure that if the wireless transmission facility experiences overcurrent resulting from current exceeding the rating of equipment or the ampacity of a conductor, the facility shall turn off temporarily.

   (k) Depowering procedures including identification of locations of electrical depowering devices, which include:

(i) Coded floor prints located in the Fire Safety Plan document;

(ii) Facility signage to direct fire personnel to depowering locations;

(iii) The method of turning off power to the following:

i. Alternating current power board. This is the primary source of electric power for a small wireless facility and is supplied by the local power company.

ii. Standby power generator. This unit, usually a turbine or diesel generator, provides standby ac power that is transferred manually or automatically whenever a loss of ac power is experienced.

iii. Direct current primary disconnect fuse or circuit breaker bay. This unit distributes dc power to the secondary fuse or circuit breaker panels throughout the central office. The secondary fuse or circuit breaker panels feed all the operating voltages to the central office branch circuits.

iv. Uninterruptible power supply (UPS)

v. HVAC systems serving the facility

vi. Alternative energy devices, such as wind turbines, fuel cells, photovoltaic systems, or other devices providing power to the facility.

(l) Detailed electrical designs, signed and stamped by a licensed electrical engineer, demonstrating compliance with the adopted building, electric and fire codes adopted by the Town. The Code compliance demonstration shall include all necessary underlying calculations and inputs, including but not limited to:

i. 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;

ii. A one-line diagram of the electrical system;

iii. Voltage Drop & Load Flow Study;

iv. Load Calculation;

v. Panel Directories;

9. Regulatory authorization. The applicant shall submit evidence of the applicant's regulatory status under federal and Arizona law to provide the services and construct the small wireless facility proposed in the application. The application shall clearly and expressly state whether the facility will be used to provide personal wireless services as defined by federal law and if the applicant contends 47 U.S.C. § 332(c)(7) and 47 C.F.R. §§1.6002 and 1.6003 apply. The applicant shall also clearly state whether it contends that 47 U.S.C. § 1455 and 47 C.F.R. § 1.6100 apply.

10. Environmental impact assessment. A completed FCC NEPA worksheet that was used to determine whether further environmental processing under NEPA and 47 C.F.R. Subpart I is necessary.

11. Structural analysis by a professional engineer licensed in the State of Arizona that evaluates whether the underlying pole or support structure has the structural integrity to support all the proposed equipment and attachments. At a minimum the analysis must be consistent with ANSI .05.1 standards, the standards and practices required for an ANSI/TIA-222 Maintenance and Conditions Assessment (under the most current revision at the time of submittal), any safety and construction standards required by law and the utility provider and all other applicable codes. The report shall contain tolerances including but not limited to guy tensions if applicable, plumb, twist, slip splices and take up devices. If a new tower or monopole, include calculations demonstrating the new tower is capable of collocation of at least one additional set of antenna.

12. Acoustic analysis. The applicant shall submit an acoustic analysis prepared and certified by a licensed engineer in the State of Arizona for the proposed facility and all associated equipment including all environmental control units, sump pumps, temporary backup power generators and permanent backup power generators demonstrating compliance with the

Town's noise regulations. The acoustic analysis must also include an analysis of the manufacturer's specifications for all noise-emitting equipment and a depiction of the proposed equipment relative to all adjacent property lines.

13. A Radiofrequency Compliance Report prepared in accord with the latest version of FCC OET Bulletin 65 shall be required for the proposed project as well as any co-located facilities that contribute to the cumulative exposure from the wireless facility; certifying the project will comply with applicable federal RF exposure standards and exposure limits. The RF Compliance Report shall be submitted with the Application to certify that the proposed project will not violate FCC public safety limits for RF exposure (FCC uncontrolled public exposure limits). It shall be prepared by a Professional Engineer registered in the State of Arizona, signed and submitted under the penalty of perjury that the facility will not expose members of the general public to radiation levels that exceed the permissible limits the FCC has set for uncontrolled public exposure. The Town, at its own discretion may hire a licensed engineer to verify findings of the FCC Compliance Report, at applicant's expense. An RFR Data Request Sheet prepared by the Applicant and/or their technical RF consultant in the form attached as Attachment A shall be submitted with the Application that includes the antenna make and model, transmit frequencies and power (in watts effective radio power (ERP)) by sector; total number of channels per sector and ERP per sector; downtilt, if any, and the number of degrees of vertical downtilt per antenna; the direction of transmission (in degrees) for each sector and mounting height above ground for each antenna array. The RF Compliance Report shall provide methodology and calculations of power density in microwatts per centimeter squared (uW/cm2) in addition to percent of standard, and shall show run-out tables of power density vs. distance to 600' horizontal distance, at ground level (6') and second-story level (16'); and the Facility's distance from nearest habitable structure(s) and applicable calculations of power density (in uW/cm2).

14. If the application is for a wireless facility that will not be attached to an existing utility pole and the facility's proposed height will be greater than 30 feet then structural elevations of the facility(ies) shall include any trees and other structures within 20 feet, and their height.

15. Notice of Application. The applicant shall provide evidence that a Town-approved notice was sent to all landowners and residents within 300 feet of the proposed facility location at least 15 days prior to application submittal.

C. Each Eligible Facilities Request shall include the items listed in A.1.-6., 8., 11.-13., and 15. The applicant shall also produce all other information that is necessary for the Development Services Director to verify that the proposed facility meets the criteria for an Eligible Facilities Request in 47 C.F.R. §1.6100.

D. Additional submittal requirements for wireless facilities located within the Town's rights-of-way:
   1. A signed Wireless Facility License Agreement; and
   2. A Wireless Facility Encroachment Permit

E. Additional submittal requirements for wireless facilities located on private property:
   1. Proof of authorization of site occupancy. If the applicant is not the owner of real property where it seeks to install and operate its facility(ies) and is leasing all or a portion of the real property, the application shall provide a written copy of its lease with the owner of such property or other proof that applicant is authorized to occupy the site.
   2. Tree protection. The applicant shall identify all existing trees to be removed on a parcel for the installation, operations and maintenance of the facility and obtain approval from the Town of a tree protection plan prepared by a certified arborist if the small cell installation will be located within the canopy of a tree or within a 20-foot radius of the base of such a tree. Depending on site specific criteria (e.g., location of tree, size, and type of tree, etc.), a radius greater than 20 feet may be required.

Section 16-2-6 Review Procedures and Timelines; Fees

A. Complete Application. Applications for small wireless facilities shall be filed electronically on the Town's website using the process established by the director for such applications. All such applications shall include the information as required by Section 16-2-5 as appliable to the type of application.

B. Independent Consultant. The Town is authorized to retain an independent, qualified consultant to review any application for a permit for a small wireless facility to review the technical aspects of the application, including, but not limited to, the following matters:
   1. The accuracy, adequacy, and completeness of submissions;
   2. Compliance with applicable radio frequency emission standards;
   3. Whether any requested exception is necessary to close a significant gap in coverage and is the least intrusive means of doing so;
   4. Technical demonstration of the unavailability of alternative sites, facility designs or configurations, and coverage analysis; and

5. The validity of conclusions reached or claims made by applicant.
6. The cost of this review shall be paid by the applicant through a deposit pursuant to an adopted fee schedule resolution.

C. Review and approval authority. The Town of Fountain Hills reserves its authority to the fullest extent permitted over decisions regarding the placement, construction, and modification of a wireless communications facility pursuant to 47 U.S.C. § 332(c)(7)(A) and A.R.S. § 9-596.

D. The permitting and regulation of small wireless facilities are subject to all of the Town's codes and regulations, including the Town's zoning codes and other regulatory documents.

E. Voluntary waiver of timeframes for completeness review and the Arizona shot clock to either grant or deny a properly completed application. In the interests of promoting a proper review for approval of a permit application, the Town shall request that Applicant agree to a voluntary waiver of the timeframe for completeness review and permit review pursuant to A.R.S. § 9-593.F.2. and/or 47 C.F.R. § 1.6003(d) upon receipt of an application.

F. Completeness review. Upon receipt of wireless communications facility permit application, the Town shall review the application for completeness. If the Town determines the application is: (a) incomplete, (b) missing required application materials, (c) specifies the wrong type of wireless facility, or (d) is otherwise defective, then, within 20 days of the Town's receipt of the application for collocation of small wireless facilities or 30 days of the Town's receipt of the application for the modification of existing or the installation of new monopoles, utility poles or new wireless facilities, the Town shall notify applicant of the incompleteness of an application with a notice of incomplete application sent by electronic mail. If and to the extent 47 C.F.R. § 1.6003 applies, the tolling periods set out in § 1.6003(d) shall apply. If and to the extent that 47 C.F.R. § 1.6100 applies, the tolling periods in § 1.6100(c) shall apply.

1. Notice of incomplete application. Such notice shall advise the applicant, indicating with specificity any deficiencies in the required documents or deficiencies in the content of the required documents which, if cured, make the application properly completed.
2. Extension of 75-day application review period for collocations of small wireless facilities or 150-day period for modifications of existing or installations of new monopoles, utility poles or new wireless facilities. The Town and applicant may mutually agree to extend the 75-day or 150-day application review period.
3. Eleventh hour submissions. Upon the electronic mailing of such notice of incompleteness, applicant will have a reasonable timeframe to cure

deficiencies and make the application properly completed to accommodate the Town's timely request for information required to complete the application. In the event that applicant tenders eleventh hour submissions to the Town in the form of expert reports, expert materials, and/or materials which require a significant period for review due either to their complexity or the sheer volume of materials which an applicant has chosen to provide to the Town at such a late point in the proceedings, the Town shall be afforded a reasonable time to review such late-submitted materials.

4. If applicant does not cure stated deficiencies within 30 days, the application will be considered withdrawn or closed.

G. On-site inspection. A physical inspection by Town staff or the Town's designee may be required for any application that involves:

1. A new wireless facility on a new or replacement structure;
2. Any modification to an existing facility if no physical inspection has occurred in the last 12-month period.

H. Property values impact report. The Town may require applicant to submit a property values impact report prepared by an independent, qualified real estate appraiser licensed in the state of Arizona. The report shall evaluate the potential impact of the proposed wireless facility on the value, marketability, and desirability of nearby residential properties and shall:

1. Identify all residential properties located within at least one thousand (1,000) feet of the proposed wireless facility site, or such greater distance as determined appropriate by the Town;
2. Analyze the potential effects of the proposed facility on surrounding property values, including but not limited to visual impacts, proximity impacts, neighborhood character, aesthetics, noise, lighting, and equipment visibility associated with the proposed installation;
3. Include a comparative analysis of similarly situated properties located near existing wireless facilities and comparable properties not located near such facilities, where data is reasonably available;
4. Evaluate impacts on scenic views, residential enjoyment, and community character, particularly in residential neighborhoods, historic districts, scenic corridors, and environmentally sensitive areas;
5. Include all assumptions, methodologies, supporting market data, studies, photographs, maps, and comparable sales relied upon in preparing the report;
6. Be prepared at the sole expense of the applicant; and
7. Be subject to independent peer review by a real estate expert selected by the Town, at the applicant's expense.

The Town may consider the findings of the property value impact report, including any evidence of adverse impacts on surrounding properties or neighborhood character, when evaluating compliance with applicable zoning, aesthetic, compatibility, and public welfare standards under this Code.

I. Environmental impact. For all applications other than eligible facilities requests, the Town shall conduct environmental reviews pursuant to NEPA. If, and to the extent that, the Town determines a proposed installation bears the potential for a significant adverse impact upon the environment within the meaning of NEPA, then the Town shall be expected to comply with the requirements of NEPA in determining both

1. The extent of adverse impacts upon the environment and
2. What mitigation measures the applicant should be required to undertake to minimize the adverse environmental impacts and/or adverse impacts upon historic sites, structures and/or districts.

J. Historical reviews. For all applications other than eligible facilities requests, the Town shall consider the potential adverse impacts of any proposed personal wireless services facility upon any historic site or structure. If, and to the extent that the Town determines that a proposed installation bears the potential for a significant adverse impact upon a historic site or a historic district within the meaning of the NHPA (especially if the historic site at issue is listed upon the national register of historic places), then the reviewing authority shall comply with the requirements of both NHPA and Town law in determining both: (a) the extent of adverse impacts upon the historic properties, and (b) what mitigation measure might the applicant be required to undertake to minimize the adverse environmental impacts and/or adverse impacts upon historic sites or structures. Should a respective applicant fail to obtain a Section 106 review under NHPA, and opinion letters from the FCC pertaining to its proposed installation prior to a first public hearing before the reviewing authority for the respective application, then the Town shall make direct requests to the FCC for their review of the application. They shall request the FCC's review and input in completing the statutorily-required environmental/historic impact analysis pursuant to NHPA. This request shall include, but not be limited to, a request to the FCC for a Section 106 review, as defined in this chapter, as the Town recognizes each application for a wireless communications facility permit for the installation of a personal wireless services facility shall constitute "an undertaking" for purposes of compliance with the National Historic Preservation Act.

K. Small wireless facilities in the public right-of-way. The permitting and regulation of small wireless facilities in the right-of-way are subject to all of the Town's codes and regulations, including the Town's zoning codes and other

regulatory processes governing use of the rights-of-way. Small wireless facilities located or collocated within the Town's rights-of-way shall be reviewed in accordance with the following:

1. Review and approval authority. The Town of Fountain Hill reserves its authority to the fullest extent pursuant to 47 U.S.C. § 332(c)(7)(A) and A.R.S. § 9-594.B. to regulate the construction, installation, maintenance, modification, operation or replacement of a utility pole, monopole or associated wireless facility in a right-of-way.

2. No monopoles, utility poles associated with small wireless facilities, or small wireless facilities shall be collocated, installed, modified, or replaced in the public right-of-way unless the following requirements are met. Applications for the installation of new, replacement or modified utility poles associated with the collocation of small wireless facilities in the right-of-way shall be reviewed for compliance with the following:

   (a) All applicable codes.

   (b) Local code provisions or regulations that concern:

      i. Public safety.

      ii. Objective design standards and reasonable stealth and concealment requirements.

      iii. Undergrounding requirements that prohibit the installation of new or the modification of existing utility poles or monopoles in a right-of-way without prior approval, if such requirements include a waiver, zoning or another process that addresses requests to install such new utility poles or monopoles or modify such existing utility poles or monopoles and do not prohibit the replacement of utility poles or monopoles.

   (c) Requirements that are imposed by a contract between the Town and a private property owner and that concern design standards applicable to utility poles in the right-of-way.

   (d) The Town's public safety and reasonable spacing requirements that concern the location of new utility poles in a right-of-way.

Approval of an Application is contingent upon the applicant demonstrating compliance with the Wireless Facilities Standard Terms and Conditions, the Town's Design Standards and Guidelines, and any site-specific requirements

developed based upon consultation with the Town through the site review and permitting process.

Upon approval of an Application, a Wireless Facility Encroachment Permit will be issued for each monopole, utility pole associated with small wireless facilities, or small wireless facility included in the Application. However, nothing in this article shall be construed to exempt monopoles, utility poles associated with small wireless facilities, or small wireless facilities in the public right-of-way from the requirements of Article 16-1 as an encroachment in the public right-of-way.

L. The Town shall notify the applicant of approval or denial by electronic mail on or before the end of the applicable shot clock period or, if review timeframe waived, at the end of any mutually agreed-upon extension. If the application is denied, the Town shall specify the basis for the denial in writing with citations to the specific code provisions on which the denial is based and send the documentation to Applicant by electronic mail. The applicant may cure the deficiencies identified by the Town and resubmit the application within 30 days after the notice of denial is sent to the applicant. If the application is resubmitted, the Town shall approve or deny the application within 30 days of receipt of the application. If Applicant does not cure the stated deficiencies within 30 days, the application shall be considered withdrawn or closed.

M. Truthful and accurate statements. Applicant acknowledges that the Town's approval relies on the written and/or oral statements by applicant and/or persons authorized to act on permittee's behalf. In any matter before the Town in connection with the small wireless facility or other infrastructure approved under the wireless communications facility permit, neither the applicant nor any person authorized to act on applicant's behalf shall, in any written or oral statement, intentionally provide material factual information that is incorrect or misleading or intentionally omit any material information necessary to prevent any material factual statement from being incorrect or misleading.

Section 16-2-7 Permit Conditions

A. Owners of all approved wireless facilities shall be required to agree to allow future co-location by other carriers, and to provide an efficient process for handling co-location requests.

B. Post-installation certification. Within 60 calendar days after the permittee commences full, unattended operations of the wireless facility approved or deemed-approved, the permittee shall provide the Town's Development Services Director, or his or her designee with documentation reasonably acceptable to the Development Services Director, at its expense, showing that the wireless facility has been installed and constructed in strict compliance with the approved construction drawings and photo simulations. Such documentation shall include without limitation as-built drawings, GIS data, and site photographs and may be reviewed by an independent consultant retained by the Town pursuant to this Ordinance. The post-installation certification shall include, without limitation, the physical site information including listing of ASR registration number, owner of record, service life, number of antennas, name of each wireless carrier using the facility, list of lengths and sizes of guy wire coil, lengths and sizes of COAX and fiber cable, COAX fiber boots, COAX fiber panels, and COAX fiber connectors, base station equipment, jaw turnbuckle, grounding kit(s), lighting arrestor, lights, wave bridge, GPS receiver(s) and transmitter(s), and backup power equipment including fuel tank(s).

C. Insurance required. Prior to final inspection and operation of the facility, The permittee and each owner or operator of an antenna on the personal wireless services facility, shall obtain, and at all times relevant to this permit maintain, insurance policies, issued by an insured authorized to do business in the State of Arizona and reasonably acceptable to the Town of Fountain Hills, at least as broad as follows:

1. Commercial general liability insurance. Commercial general liability insurance. The permittee shall procure and maintain at its expense or cause its contractor or subcontractor to procure and maintain throughout the term of this permit, commercial General Liability ("CGL") insurance on an "occurrence" basis, with limits not less than $10,000,000 per occurrence per wireless carrier or $10,000,000 per wireless carrier in the aggregate. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project location or the general aggregate limit shall be twice the required occurrence limit. CGL insurance must include coverage for the following: Bodily Injury and Property Damage; Personal Injury/Advertising Injury; Premises/Operations Liability; Products/Completed Operations Liability; Aggregate Limits that Apply per Project; Explosion, Collapse and Underground ("UCX") exclusion deleted; Contractual Liability with respect to the permit; Broad Form Property Damage; and Independent Consultants Coverage. The policy shall contain no endorsements or provisions limiting coverage for (i) contractual liability; (ii) cross liability exclusion for claims or suits by one insured against another; (iii) products/completed operations liability; (iv) bodily injury or damage from RF exposure at levels

exceeding the FCC limits; or (v) contain any other exclusion contrary to the conditions in this permit.

2. Environmental pollution liability insurance. The permittee shall procure and maintain at its expense or cause its contractor or subcontractor to procure and maintain throughout the term of this permit, Contractors Pollution Liability Insurance including contractual liability coverage to cover liability and legal expenses arising out of cleanup, removal, storage, or handling of hazardous or toxic chemicals, materials, substances, or any other pollutants by the permittee or any subcontractor resulting from pollution conditions associated with the personal wireless services facility in an amount not less than $1,000,000 each occurrence combined single limit for bodily injury and property damage.

3. Umbrella policy. If an umbrella or excess liability insurance policy is used to satisfy the minimum requirements for insurance coverage listed above, the umbrella or excess liability policies shall provide coverage at least as broad as specified for the underlying coverages and covering those insured in the underlying policies. Coverage shall be "pay on behalf," with defense costs payable in addition to policy limits. Permittee shall provide a "follow form" endorsement or schedule of underlying coverage satisfactory to the Town indicating that such coverage is subject to the same terms and conditions as the underlying liability policy

4. Endorsements. The relevant policy(ies) shall name the Town of Fountain Hills, its elected/appointed officials, commission members, officers, representatives, agents, volunteers and employees as additional insureds. The permittee shall use its best efforts to provide thirty (30) days' prior notice to the Town of the cancellation or material modification of any applicable insurance policy.

5. Verification of coverage. Permittee shall furnish the Town of Fountain Hills with original certificates and amendatory endorsements or copies of the applicable policy language providing the insurance coverage required herein. All certificates and endorsements are to be received and approved by the Town before any work commences. However, failure to obtain required documents prior to the work beginning shall not waive the Licensee's obligation to provide them. Permittee shall furnish updated certificates and endorsements to the Town annually. The Town reserves the right to require updated certificates and endorsements or complete, certified copies of all required insurance policies, including the endorsements required herein, at any time.

D. Permittee has full liability. The permittee shall assume full liability for damage or injury caused to any property or person by the personal wireless services facility.

E. Prior to final inspection and operation of the facility, permittee shall provide an executed agreement, pursuant to which permittee and any related third parties agree to defend, hold harmless and fully indemnify the Town of Fountain Hills, its officers, employees, agents, attorneys, and volunteers, from (i) any claim, action or proceeding brought against the Town or its officers, employees, agents, or attorneys to attack, set aside, void, or annul any such approval of the Town or (ii) a successful legal action brought against the Town for loss of property value or other harm caused by the placement or operation of a small cell installation. Such indemnification shall include damages, judgments, settlements, penalties, fines, defensive costs or expenses, including, but not limited to, interest, attorneys' fees and expert witness fees, or liability of any kind related to or arising from such claim, action, or proceeding whether incurred by the permittee, the Town of Fountain Hills and/or the parties initiating or bringing such proceeding. The agreement shall also include a provision obligating the permittee to indemnify the Town of Fountain Hills for all of the Town's costs, fees and damages which the Town incurs in enforcing the indemnification provisions of this Section.

F. ADA accommodations. The Town of Fountain Hills seeks to comply with the Americans With Disabilities Act, and shall comply with same in the event that any person who is disabled within the meaning of the Act seeks a reasonable accommodation, to the extent they are entitled to same under the Act.

G. Prior to the issuance of any entitlement permit, the applicant shall provide a facility maintenance/removal agreement and decommissioning plan to the Town manager, binding the developer and successors in interest, to an agreement to:

    1. Maintain the facility as approved; and

    2. Notify the Town of Fountain Hills of intent to vacate the site, agreeing that the applicant will remove all facilities within twelve (12) months pursuant to the decommissioning plan unless the site is occupied by a successor; or

    3. Provide a performance bond equal in cost to removing the facility and associated facilities.

H. Decommissioning plan. The Facility Maintenance/Removal Agreement shall include a decommissioning plan with the following information:

1. A plan for disposal of all solid waste, special waste and hazardous waste in accordance with local, state, and federal waste disposal regulations detailing the types and quantities of waste materials and methods of disposal;

2. A description of how and on what schedule stabilization and re-vegetation of the site as deemed necessary to minimize erosion will be accomplished. Permittee should include, to the extent possible, restoration of native vegetation, and pollinator-friendly seed mixtures shall be used to the maximum extent possible in re-vegetation of ground cover;

3. An estimate of costs for the decommissioning of the personal wireless services facility with a detailed description of how the estimated costs were derived, including the date which was the basis for the estimate;

4. A decommissioning plan signed by the party responsible for decommissioning and the landowner (if different) whose minimum requirements meet the standards of this Ordinance. Such plan must be filed with the Town manager prior to the first operation of the personal wireless services facility;

5. An estimate of the total cost of decommissioning value of the equipment and itemization of the estimated major expenses, including the projected costs of measures taken to minimize or prevent adverse effects on the environment during the implementation of the decommissioning plan.

I. Abandoned Facilities: The wireless facility authorized under this permit shall be deemed abandoned if not operated for any continuous six-month period. Within 90 days after a small wireless facility or other infrastructure deployment is abandoned or deemed abandoned, the permittee and/or property owner shall completely remove the small wireless facility or other infrastructure deployment and all related improvements and shall restore all affected areas to a condition compliant with all applicable laws, which includes without limitation the Code. In the event that neither the permittee nor the property owner complies with the removal and restoration obligations under this condition within said 90-day period, the Town shall have the right (but not the obligation) to perform such removal and restoration with or without notice, and the permittee and property owner shall be jointly and severally liable for all costs and expenses incurred by the Town in connection with such removal and/ or restoration activities.

J. Landscaping. The permittee shall replace any landscape features damaged or displaced by the construction, installation, operation, maintenance or other work performed by the permittee or at the permittee's direction on or about the site. If any trees or cacti are damaged or displaced, the permittee shall hire and pay for a licensed arborist to select plant and maintain replacement landscaping in an appropriate location for the species. Any replacement tree or cacti must be substantially the same size as the damaged tree or cacti or as otherwise approved by the Town of Fountain Hills. The permittee shall, at all times, be responsible to maintain any replacement landscape features.

K. A permanent, weatherproof, facility identification sign, no more than twelve (12") inches by twenty-four (24") inches in size, identifying the facility operator and a twenty-four (24) hour phone number, shall be placed on the fence, the equipment building or facility base. If larger signage is required by the FCC, the applicant shall provide proof of the requirement, and signage shall not exceed the required size.

L. Permittee's contact information. Prior to the final inspection and at all times relevant to this permit, Permittee shall keep on file with the Town of Fountain Hills basic contact and site information. This information shall include, but not is limited to, the following:

1. The name, physical address, notice address (if different), direct telephone number and email address for the permittee and, if different from the permittee, the site operator, equipment, owner, the site manager and agent for service of process;

2. The regulatory authorizations held by the permittee and, to the extent applicable, site operator, equipment owner and site manager as may be necessary for the facility's continued operation;

3. The facility's site identification number and/or name used by the permittee and, to the extent applicable, site operator, equipment owner and site manager; and

4. A toll-free telephone number to the facility's network operations center where a live person with power-down control over the facility is available 24 hours-per-day, seven days-per-week. Within 10 business days after a written request by the Town of Fountain Hills, the permittee shall furnish the Town with an updated form that includes all the most current information described in this condition.

M. Within 15 days after any project approval, the permittee shall sign and file with the Town manager a defense and indemnity agreement, to defend, indemnify,

hold harmless, the Town of Fountain Hills and Town Council, agents, officers, officials, employees and volunteers (collectively, the "indemnitees") from any and all (i) damages, liabilities, injuries, losses, costs and expenses and from any and all claims, demands, law suits, writs and other actions or proceedings ("claims") brought against the indemnitees to challenge, attack, seek to modify, set aside, void or annul the Town of Fountain Hills' s approval of this use permit, and (ii) other claims of any kind or form, whether for personal injury, death or property damage, that arise from or in connection with the permittee's or its agents', directors', officers', employees', contractors', subcontractors', licensees' or customers' acts or omissions in connection with this use permit or the small wireless facility or other infrastructure deployment. In the event the Town of Fountain Hills becomes aware of any claims, the Town will use best efforts to promptly notify the permittee and the private property owner (if applicable) and shall reasonably cooperate in the defense. The permittee expressly acknowledges and agrees that the Town shall have the right to approve, which approval shall not be unreasonably withheld, the legal counsel providing the Town's defense, and the property owner and/ or permittee (as applicable) shall promptly reimburse the Town for any costs and expenses directly and necessarily incurred by the Town in the course of the defense. The permittee expressly acknowledges and agrees that the permittee' s indemnification obligations under this condition are a material consideration that motivates the Town to approve this use permit, and that such indemnification obligations will survive the expiration, revocation or other termination of this permit in the form approved by Town Manager.

N. Permit revocation. Any permit granted under this section may be revoked in accordance with the provisions and procedures in Section 16-1-3. The Town Council, Town Manager, Fire Marshal, Development Services Director, or other Town official may initiate revocation proceedings when there is information that the facility may not be in compliance with all applicable laws, which includes without limitation, any permit in connection with the facility and any associated conditions with such permit(s). Before any public hearing to revoke a permit granted under this Section, the body that originally approved the permit must issue a written notice to the permittee that specifies (i) the facility(ies); ii) the violation(s) to be corrected; (iii) the timeframe in which the permittee must correct such violation(s); and (iv) that, in addition to all other rights and remedies the Town of Fountain Hills may pursue, the Town may initiate revocation proceedings for failure to correct such violation(s). The body that originally approved the permit may revoke a permit when it finds substantial evidence in the written record to show that the facility is not in compliance with any applicable laws, which includes without limitation, any permit in connection with the facility and any associated conditions with such permit(s). Any decision to revoke or not revoke a permit shall be final and not

subject to any further appeals. Written notice of intention to revoke the permit shall be mailed to the applicant not less than 10 days before the public hearing.

O. Truthful and accurate statements. The permittee acknowledges that the Town's approval relies on the written and/or oral statements by permittee and/or persons authorized to act on permittee' s behalf. In any matter before the Town of Fountain Hills in connection with the use permit or the wireless facility approved under the use permit, neither the permittee nor any person authorized to act on permittee' s behalf shall, in any written or oral statement, intentionally provide material factual information that is incorrect or misleading or intentionally omit any material information necessary to prevent any material factual statement from being incorrect or misleading.

Section 16-2-8 Safety Standards

A. All small wireless facilities shall be designed by qualified, licensed persons to meet minimum standards for public safety, and shall comply with all applicable legal requirements, including the Town Building, Electric, and Fire Codes throughout the permit period. All wireless facilities should be proactively monitored and maintained to ensure compliance with the safety design.

A. Fire Safety Hazard Protocols: If the Fire Chief (or his or her designee) finds good cause to believe that the facility(ies) (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 permittee’s sole cost and expense.

B. Other Safety Hazard Protocols: If there is good cause to believe that the facility(ies) presents a danger of debris fall or shows signs of imminent structural such as misaligned base plates, degraded flanges, defective sections, joints, and guy wires, Town officials may order the facility(ies) shut down and powered off until such time as the hazard has been mitigated. Any mitigations required shall be at permittee’s expense.

C. All small wireless facilities shall comply with safety standards, including, but not limited to, The National Electric Safety Code and applicable life safety codes, Town of Fountain Hills Building Safety Code, and engineering codes.

Section 16-2-9 Operational Requirements

A. RF Limit: The Town deems it to be of critical importance to the health, safety, and welfare of the Town, its residents, and the public at large that personal wireless service facilities do not expose members of the general public to levels of RF radiation that exceed the limits set out in FCC regulations. In accord with the same, the Town enacts the following RF Radiation testing requirements and provisions set forth herein below.

1. Prohibition on Illegally Excessive RF Radiation: No facility shall be sited or operated in such a manner that it poses, either by itself or in combination with other such facilities, a potential threat to public health. To that end no small wireless facility or combination of facilities shall produce at any time RF emissions that exceed the limits for Maximum Permissible Exposure for human exposure pursuant to 47 CFR §1.1310(e)(1), Table 1 or any more restrictive standard subsequently adopted or promulgated by the Town, the state of Arizona, or the federal government.

2. RF Emissions Monitoring Requirements

(a) Post-installation certification. Within 45 days of commencing operation of a facility, the permittee shall provide the Development Services Director a post installation certification prepared in accordance with the small wireless facility standards confirming that the facility is compliant with FCC regulations concerning radio frequency emissions.

(b) Post-modification certification. Within 45 days of modifying a permitted facility, the permittee shall perform subsequent radio frequency reporting and testing confirming that the small wireless facility is compliant with FCC regulations concerning radio frequency emissions.

(c) Annual certification. No more than 12 months following the issuance of the initial Wireless Permit, and no more than 12 months after each annual certification, the permittee shall perform subsequent radiofrequency reporting and testing confirmation that the small wireless facility is compliant with FCC regulations concerning radiofrequency emissions. Failure to supply the required reports or to remain in continued

compliance with Maximum Permissible Exposure limits for human exposure pursuant to 47 CFR §1.1310(e)(1), Table 1 shall be grounds for revocation of the permit or other entitlement.

(d) Random testing. At the permittee's expense, the Town may retain an engineer or other qualified electromagnetic radiation specialist to conduct random unannounced RF radiation testing of any facility to ensure the facility's compliance with the limits in 47 C.F.R.§1.1310(e)(1) Table 1.

(e) If the Town has good cause to believe a facility or facilities is operating in excess of FCC exposure limits, the Town may hire an independent consultant to test the facility for excess RF emissions levels. Such testing shall be conducted at permittee's expense. Noncompliance with FCC exposure guidelines shall be grounds for revocation of the permit or other entitlement.

3. Any finding of illegally excessive RF radiation is a violation of this ordinance and the permit conditions and the permit is subject to revocation pursuant to Section 16-2-7. N. or recission.

B. Maintenance: All small wireless facilities including, but not limited to, monopoles, utility poles, accessory equipment, lighting, fences, walls, shields, cabinets, artificial foliage or concealment elements and the facility site shall be maintained so as to minimize visual, noise, and other impacts on the surrounding community and be maintained in good condition, including ensuring the facilities are reasonably free of:

1. Dirt or grease;

2. Chipped, faded, peeling, or cracked paint;

3. Rust and corrosion;

4. Cracks, dents, or discoloration;

5. Missing, discolored, or damaged synthetic foliage or other concealment elements;

6. Graffiti, bills, stickers, or advertisements;

7. Litter or debris including but not limited to synthetic foliage that has fallen off a monopine; permittee is responsible for prompt cleanup of debris or synthetic foliage at its expense.

8. Broken or misshapen structural parts; and

9. Damage from any cause.

C. Repairs. All necessary repairs and restoration shall be completed by the permittee, owner, or operator within 48 hours:

1. After discovery of the need by the permittee, owner, operator or any designated maintenance agent; or

2. After the permittee, owner, operator, or any designated maintenance agent receives notification from a resident or the Development Services Director, or any Town official.

3. The permittee shall replace its facilities, after obtaining all required permits, if maintenance or repair is not sufficient to return the facility to the condition it was in at the time of installation.

4. Each owner or operator of a facility shall routinely inspect each site to ensure compliance with the standards set forth in this section and the conditions of approval.

D. No changes shall be made in the location, dimensions, character or duration of the monopoles, utility poles associated with small wireless facilities, or small wireless facilities as granted by the permit except upon written authorization of the Development Services Department.

Section 16-2-10 Exceptions

A. The Town may grant an exception to the provisions in this Article but only to the extent necessary to avoid conflict with applicable federal or state law. When the applicant requests an exception, the Reviewing Authority shall consider the findings in Subsection B. Each exception is specific to the facts and circumstances in connection with each application. An exception granted in one instance shall not be deemed to create a presumption or expectation that an exception will be granted in any other instance.

B. Findings for an Exception. The Town Council may grant an exception to any provision or requirement in this Section only if the Council finds that:

1. a denial based on the application' s noncompliance with a specific provision or requirement would violate federal law, state law or both; or

2. a provision in this Section, as applied to the applicant, would violate any rights or privileges conferred on the applicant by federal or state law.

C. Exception Requests. An applicant may request an exception only at the time the applicant submits an application. The Reviewing Authority may consider additional information provided by the applicant after submittal to supplement the initial exception request. Any request for an exception after the initial submittal shall be deemed to be a new application.

D. Burden of Proof. The applicant shall have the burden to prove to the Council that an exception should be granted pursuant to Subsection B. The standard of evidence shall be the same as required by applicable federal or state law for the issue raised in the applicant' s request for an exception.

E. Scope of Exception. If the Council finds that an exception should be granted, the exception shall be narrowly tailored so that the exception deviates from this Section to least extent necessary for compliance with federal or state law.

Section 16-2-11 Appeals

Any person adversely affected by a decision of the Town Manager, or Development Services, in the granting or denial of a permit pursuant to this section may appeal that decision to the Board of Adjustment. Such appeal must be taken by filing written notice with the Town manager, or designee, with a copy to the Town clerk, within 30 days after the decision of the Town manager, or development review board if the appellant received actual notice within 5 days of the decision. The deadline is tolled on a day for day basis until the appellant receives actual notice or should have become aware of the decision using reasonable diligence. Each appeal must be accompanied by a payment in sufficient amount to cover the cost of publishing and mailing notices of hearings. Failure to file such appeal constitutes acceptance of the permit and any conditions thereof or the denial of the application. Where a notice of appeal to the Town manager, or designee, is not timely filed as provided in this section, such right to appeal is waived.

Section 16-2-12 Rates and Fees

A. The Town Council shall, by ordinance or resolution, set and amend any rate, rate component, charge, or fee authorized by state law for the use of the public right-of-way and Town utility poles in connection with small wireless facilities including:

a. Fees for special use permit applications

b. Fees for collocation applications;

c. Fees for the use of the right-of-way;

d. Rates for the use of the Town's utility poles;

e. Fees for Encroachment Permit Applications;

f. Fees to recover legal costs resulting from enforcement to any noncompliance including, but not limited to, administrative expenses, investigation, testing, legal proceedings and filings, and continued monitoring; and

g. Other fees as the Town may determine necessary to carry out the requirements contained herein.

B. All rates and fees set or amended pursuant to this article shall be reasonable and shall not exceed the amounts permitted by state law.

C. The Town shall publish and make available its schedule of rates and fees.

D. These fees relate solely to the matters covered by this article and are separate from all other fees, fines and penalties chargeable by the Town.

Federal Communications Commission

GN Docket No. 19-367

MOBILITY FUND PHASE II
COVERAGE MAPS INVESTIGATION
STAFF REPORT

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I. INTRODUCTION

1. Bridging the digital divide is the Federal Communications Commission's top priority, and accurate broadband deployment data are critical to this mission. As part of the Commission's ongoing effort to reform universal service funding of mobile wireless services and focus subsidies on unserved areas rather than on areas that already have service, the Commission unanimously adopted a new data collection of 4G Long-Term Evolution (LTE) mobile broadband coverage maps and a challenge process to determine areas eligible for support in the Mobility Fund Phase II (MF-II) auction. The largest mobile providers supported both this data collection and the challenge process. After mobile providers submitted coverage maps to the Commission and during the challenge process, some parties raised concerns regarding the accuracy of the maps submitted by providers. Based on these parties' complaints and its own review of the record, staff became concerned that maps submitted by Verizon, U.S. Cellular, and T-Mobile overstated their coverage and thus were not accurate reflections of actual coverage.

2. Mobile providers are responsible for submitting accurate coverage maps in accordance with the Commission's rules and orders. In response to these concerns and based upon a preliminary staff review of the challenger data, on December 7, 2018, the Commission launched an investigation into whether one or more major mobile providers violated the requirements of the one-time collection of coverage data. The investigation was led by the Rural Broadband Auctions Task Force in coordination with the Office of Economics and Analytics, Enforcement Bureau, Wireless Telecommunications Bureau, Wireline Competition Bureau, and the Office of Engineering and Technology. Commission staff initially requested information directly from several providers in order to understand providers' mapping processes, and later issued subpoenas to Verizon and U.S. Cellular.

3. The Commission dispatched Enforcement Bureau field agents to conduct speed tests of the Verizon, U.S. Cellular, and T-Mobile networks. Commission field agents measured on-the-ground network performance in 12 states across six drive test routes,[1] conducting a total of 24,649 tests and driving nearly 10,000 miles in the course of this testing. Field agents also conducted 5,916 stationary speed tests at 42 distinct locations in nine states. Commission staff analyzed the speed test data from both the staff tests and MF-II challengers' speed tests and compared these test data with the maps submitted for the MF-II data collection as well as with maps providers had previously submitted to the Commission in other proceedings. This report documents the steps and processes undertaken by staff to investigate the coverage maps, analyzes speed tests taken by staff and submitted by challengers, and explains why discrepancies may exist between the submitted maps and actual coverage.

4. Through the investigation, staff discovered that the MF-II coverage maps submitted by Verizon, U.S. Cellular, and T-Mobile likely overstated each provider's actual coverage and did not reflect on-the-ground performance in many instances. Only 62.3% of staff drive tests achieved at least the minimum download speed predicted by the coverage maps—with U.S. Cellular achieving that speed in only 45.0% of such tests, T-Mobile in 63.2% of tests, and Verizon in 64.3% of tests. Similarly, staff stationary tests showed that each provider achieved sufficient download speeds meeting the minimum cell edge probability in fewer than half of all test locations (20 of 42 locations). In addition, staff was unable to obtain any 4G LTE signal for 38% of drive tests on U.S. Cellular's network, 21.3% of drive tests on T-Mobile's network, and 16.2% of drive tests on Verizon's network, despite each provider reporting coverage in the relevant area.

5. The Commission and the public must be able to rely on the deployment data that providers submit to the Commission. Inaccurate data jeopardize the ability of the Commission to focus our limited universal service funds on the unserved areas that need the most support. Accordingly, and considering the findings in this report, the Rural Broadband Auctions Task Force makes the following recommendations:

6. *First*, the Commission should terminate the MF-II Challenge Process. The MF-II coverage maps submitted by several providers are not a sufficiently reliable or accurate basis upon which to complete the challenge process as it was designed. The MF-II Challenge Process was designed to resolve coverage disputes regarding generally reliable maps; it was not designed to correct generally overstated coverage maps.

7. *Second*, the Commission should release an Enforcement Advisory on broadband deployment data submissions, including a detailing of the penalties associated with filings that violate federal law, both for the continuing FCC Form 477 filings and the new Digital Opportunity Data Collection. Overstating mobile broadband coverage misleads the public and can misallocate our limited universal service funds, and thus it must be met with meaningful consequences.

8. *Third,* the Commission should analyze and verify the technical mapping data submitted in the most recent Form 477 filings of Verizon, U.S. Cellular, and T-Mobile to determine whether they meet the Form 477 requirements. Staff recommends that the Commission assemble a team with the requisite expertise and resources to audit the accuracy of mobile broadband coverage maps submitted to the Commission. The Commission should further consider seeking appropriations from Congress to carry out drive testing, as appropriate. While Form 477 currently affords providers significant discretion in

[1] Although staff focused its testing on these six drive test routes in particular states, some tests were taken in neighboring states along several test routes. Specifically, a portion of tests were taken in Arizona on the New Mexico test route; in Kansas, New Mexico, and Texas on the Oklahoma test route; in Wyoming and North Dakota on the Montana test route; and in Massachusetts and New Hampshire on the Vermont test route. Tests on the Alabama and Arizona drive test routes were taken entirely within those states.

determining the extent of their mobile broadband coverage, this discretion does not encompass reporting inaccurate mobile coverage across extended areas in which consumers cannot receive any wireless signal whatsoever.

9. *Fourth*, the Commission should adopt policies, procedures, and standards in the Digital Opportunity Data Collection rulemaking and elsewhere that allow for submission, verification, and timely publication of mobile broadband coverage data. Mobile broadband coverage data specifications should include, among other parameters, minimum reference signal received power (RSRP) and/or minimum downlink and uplink speeds, standard cell loading factors and cell edge coverage probabilities, maximum terrain and clutter bin sizes, and standard fading statistics. Providers should be required to submit actual on-the-ground evidence of network performance (e.g., speed test measurement samplings, including targeted drive test and stationary test data) that validate the propagation model used to generate the coverage maps. The Commission should consider requiring that providers assume the minimum values for any additional parameters that would be necessary to accurately determine the area where a handset should achieve download and upload speeds no less than the minimum throughput requirement for any modeling that includes such a requirement.

10. Because detailed information on propagation model parameters and deployed infrastructure is necessary to fully verify the engineering assumptions inherent in mobile coverage data, the Commission should collect specific information used in the models, including the locations and specific characteristics of certain cell sites used for mobile wireless service, the modeling software used, the entire link budget, the sources of terrain and clutter data, and clutter values. The Commission should require engineering certifications of mobile broadband deployment data submissions. And the Commission should convene a workshop of stakeholders on best practices for the generation and submission of accurate mobile broadband deployment data including speed testing methodologies.

II. BACKGROUND

11. The Commission relies upon coverage maps submitted by providers in accordance with data collection rules and specifications adopted through notice and comment rulemakings. For almost two decades, the Commission has relied on FCC Form 477 to collect data on mobile services. In 2000, when the Commission first established the form, the Commission focused on subscription data at a broad level, envisioning that the data collected would help it better assess the availability of broadband services, such as high-speed Internet access service, and the development of competition for telephone service.[2] A decade later, the Commission recognized that such a high-level data collection, focused on subscriptions, was insufficient. Accordingly, in conjunction with reforms to reorient the Universal Service Fund toward supporting broadband deployment,[3] the Commission revised Form 477 to collect data on deployments at a granular level: census blocks for fixed services and the boundaries of coverage areas for mobile services.[4]

12. The Commission adopted a framework for an MF-II auction to focus our limited universal service funds to the areas most in need of support.[5] The Commission defined the eligible areas

[2] *Local Competition and Broadband Reporting*, Report and Order, 15 FCC Rcd 7717, 7718, 7719, 7752-53, paras. 1, 3, 69-72 (2000).

[3] *Connect America Fund et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17682 (2011) (*USF/ICC Transformation Order*).

[4] *Modernizing the FCC Form 477 Data Program*, Report and Order, 28 FCC Rcd 9887 (2013).

[5] *Connect America Fund; Universal Service Reform – Mobility Fund*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 2152, 2157-88, paras. 16-83 (2017) (*MF-II Report & Order*).

for MF-II as those areas that lacked unsubsidized 4G LTE service.[6] The Commission initially decided to use providers' Form 477 mobile broadband coverage data to determine which areas lack service in advance of the MF-II auction.[7] In light of concerns raised in the record about the accuracy and suitability of providers' Form 477 submissions for use in MF-II—in particular, the absence of standardization among coverage maps, as well as the extent of areas reported on Form 477 as having 4G LTE deployed, despite numerous on-the-ground reports of a lack of mobile broadband—the Commission also established a challenge process by which certain entities could contest the coverage data.[8] Responding to lingering concerns about whether the Commission could rely on providers' Form 477 submissions even as a starting point for a challenge process, the Commission decided to conduct a one-time, standardized collection of coverage data specifically for purposes of MF-II that would address the reliability issues with the Form 477 data.[9]

13. The process adopted by the Commission was largely based upon an industry consensus proposal to hold a one-time, standardized collection of 4G LTE coverage data, with certain modifications to the proposed standardized propagation parameters.[10] Draft specifications were included in the public version of the order establishing the challenge process, and this order was released to the public in advance of the August 2017 Commission meeting. The Commission ultimately adopted a cell edge probability in the middle of the range supported in the record in order to avoid parameters for the one-time collection that would be lower than the performance requirement for winners in the MF-II auction.[11] The adopted specifications thus sought to avoid the possibility that bidders could win funding in the auction without having to commit to additional deployment.[12] In reaching this conclusion, the

[6] *Id.* at 2173, para. 51.

[7] *Id.* at 2175, para. 56 (concluding that "Form 477 data is the most reliable data currently available for the purpose of determining the coverage levels of existing mobile services"). While the Commission acknowledged the concerns raised by parties that opposed use of these data, it explained that "none of the commenters criticizing the Form 477 data has identified a better data source for moving forward expeditiously to implement MF-II." *Id.* at 2177, para. 58.

[8] *Id.* at 2177, para. 58 ("Recognizing that no data source – including Form 477 – will be perfectly accurate, we will utilize a challenge process to improve the accuracy of the coverage analysis underlying eligibility determinations reached in reliance on Form 477 data.").

[9] *Connect America Fund; Universal Service Reform – Mobility Fund*, Order on Reconsideration and Second Report and Order, 32 FCC Rcd 6282, 6299-6302, paras. 35-39 (2017) (*MF-II Challenge Process Order*).

[10] *Id*. Based upon record evidence, the adopted parameters were tailored for rural areas to include an 80% cell edge probability and a 30% cell loading factor. *Id.* at 6298, 6300-01, paras. 34 n.89, 36-37 (citing support for a 70% cell edge probability and 30% cell loading factor and explaining that the adopted parameters "exceed the parameters that wireless operators typically use when deploying networks into previously-unserved areas"). Also differing from CTIA's proposal, the specifications adopted by the Commission did not specify support for VoLTE or particular Multiple-Input Multiple-Output (MIMO) antenna configuration assumptions but did require disclosure of the modeled signal strength and range of signal loss values associated with terrain clutter. *Id*. at 6302-03, paras. 39-40 & n.111. The adopted parameters did not otherwise deviate significantly from the industry consensus proposal. *Id.* at 6302, para. 39.

[11] *Id.* at 6300, para. 36 ("[W]e estimate that the cell area median download speed in the cell areas associated with CTIA's proposed parameters would be significantly in excess of 10 Mbps and therefore higher than the MF-II performance requirement.").

[12] *Id.* ("Adopting the higher cell edge probability and cell loading factor parameters in CTIA's proposal, however, would increase the likelihood that MF-II funds would be directed to areas that already meet the MF-II performance requirement of a 10 Mbps median download speed.").

Commission sought to "appropriately balance the concern of misrepresenting coverage with our priority of directing our limited universal service funds to areas most in need of support."[13]

14. Under the adopted framework, providers would first submit qualified, 4G LTE coverage data as part of the one-time collection, and from these data, combined with current subsidy data from the Universal Service Administrative Company (USAC), the Commission would release a map of areas presumptively eligible for MF-II support.[14] Parties that believed the coverage data were inaccurate would next be able to conduct on-the-ground speed testing and submit results to the Commission during the challenge process.[15] Providers whose coverage data were challenged would then have an opportunity to respond,[16] and ultimately challenges would be adjudicated by Commission staff.[17] Lastly, the Commission would release a final map of eligible areas that reflected the results of successful challenges.[18] This final map of eligible areas would ultimately serve as the basis for where support would be offered in the MF-II auction.[19]

15. The data specifications adopted for the one-time data collection were the most granular and standardized that the Commission had ever adopted for assessing mobile wireless coverage. The industry consensus proposal, which the adopted specifications largely mirrored, was supported by most parties in the proceeding, and no parties sought reconsideration of the Commission's decision to use the adopted specifications to establish eligibility for MF-II funding.

16. Under the one-time data collection framework, each mobile service provider that had previously reported 4G LTE coverage as part of its Form 477 filings was required to submit and certify 4G LTE coverage maps showing where its propagation models predicted that devices would receive a download speed of at least 5 Mbps with an 80% cell edge probability and a 30% cell loading factor,[20] or alternatively certify that it provides no such service.[21] In addition to these specifications, the data collection required that filers report an outdoor level of coverage, that coverage boundaries have a resolution of 100 meters or better, and that filers use an appropriate clutter factor and terrain model with a resolution of 100 meters or better.[22] Providers were also required to report the propagation modeling software, spectrum band or bands, bandwidth, clutter factor categories (and associated loss value), and

[13] *Id.* at 6301, para. 36.

[14] *Id.* at 6296, para. 28; *Procedures for the Mobility Fund Phase II Challenge Process*, Public Notice, 33 FCC Rcd 1985, 1987-89, paras. 4-8 (WCB/WTB 2018) (*MF-II Challenge Process Procedures PN*).

[15] *MF-II Challenge Process Order*, 32 FCC Rcd at 6296-97, para. 29; *MF-II Challenge Process Procedures PN*, 33 FCC Rcd at 1989-90, para. 9.

[16] *See generally MF-II Challenge Process Order*, 32 FCC Rcd at 6311-12, paras. 58-60; *MF-II Challenge Process Procedures PN*, 33 FCC Rcd at 2005-13, paras. 43-65.

[17] *MF-II Challenge Process Order*, 32 FCC Rcd at 6313-14, paras. 63-64.

[18] *MF-II Challenge Process Procedures PN*, 33 FCC Rcd at 2014, para. 67.

[19] *MF-II Report & Order*, 32 FCC Rcd at 2181-82, paras. 66-67.

[20] *MF-II Challenge Process Order*, 32 FCC Rcd at 6287-88, 6298, paras. 11, 34. We use the term "coverage map" throughout this report to refer specifically to these predictive maps based upon standardized propagation models.

[21] *See Instructions for Filing 4G LTE Coverage Data to Determine Areas Presumptively Eligible for Mobility Fund II Support,* Public Notice, 32 FCC Rcd 7023 (WCB/WTB 2017).

[22] *MF-II Challenge Process Order*, 32 FCC Rcd at 6302, para. 39.

signal strength used to generate the coverage maps.[23] Filers were otherwise required to use the optimized RF propagation models and parameters used in their normal course of business.[24]

17. Providers submitting coverage maps were also required to submit a list of at least three handsets that interested parties could use in conducting speed tests on the provider's network for the MF-II challenge process, at least one of which must run the Android operating system and one of which must support industry-standard drive test software.[25] Along with these data, filers were required to submit a certification by a qualified engineer that the propagation maps and model details reflected the filer's coverage in accord with all required parameters at the time the map was generated.[26] Submissions for the one-time collection of 4G LTE coverage data were due on January 4, 2018.[27] In total, 48 mobile service providers filed the required data, with an additional five providers filing certifications that they did not provide 4G LTE service meeting the specifications of the data collection.[28]

18. In February 2018, Commission staff released the map of areas presumptively eligible for MF-II support.[29] Using the one-time collection of qualified 4G LTE coverage data—i.e., coverage based upon mobile service providers' propagation models that predicted a download speed of at least 5 Mbps—the Commission considered any areas that did not have qualified 4G LTE coverage to be presumptively eligible for MF-II support.[30] In determining whether an area lacked qualified 4G LTE coverage, the Commission excluded from each provider's submitted coverage data those areas where the provider receives legacy frozen high-cost support, factoring in subsidy data from USAC.[31]

19. *MF-II Challenger Speed Tests*. After release of the map of presumptively eligible areas, mobile service providers, state, local, and Tribal government entities, and other interested parties granted a waiver were eligible to submit challenges in the challenge process via an online system operated by USAC.[32] Challengers that requested access to the USAC MF-II Challenge Portal were able to access the provider-specific coverage maps, after agreeing to keep the coverage data confidential, and to file challenges to providers' coverage claims by submitting speed test data.[33] Challengers were required to conduct speed tests pursuant to a number of standard parameters using specific testing methods on the

[23] *Instructions for Filing 4G LTE Coverage Data to Determine Areas Presumptively Eligible for Mobility Fund II Support*, Public Notice, 32 FCC Rcd 7023, 7024-25 (WCB/WTB 2017) (*MF-II 4G LTE Data Collection PN*).

[24] *MF-II Challenge Process Order*, 32 FCC Rcd at 6302, para. 39.

[25] *MF-II 4G LTE Data Collection PN*, 32 FCC Rcd at 7024-28; *Mobility Fund Phase II Challenge Process Handsets and Access Procedures for the Challenge Process Portal*, Public Notice, 32 FCC Rcd 10372, 10373-74, para. 5 (WCB/WTB 2017) (*MF-II Challenge Process Handsets and Portal Access PN*).

[26] *MF-II Challenge Process Order*, 32 FCC Rcd at 6302, para. 39.

[27] *Responses to the Mobility Fund Phase II 4G LTE Data Collection Are Due by January 4, 2018*, Public Notice, 32 FCC Rcd 7431 (WCB/WTB 2017).

[28] Appendix C contains a complete list of the 48 providers that submitted MF-II 4G LTE coverage data.

[29] *Mobility Fund Phase II Initial Eligible Areas Map Available; Challenge Window Will Open March 29, 2018*, Public Notice, 33 FCC Rcd 2041 (WCB/WTB 2018) (*MF-II Initial Eligible Areas Map PN*).

[30] *MF-II Challenge Process Procedures PN*, 33 FCC Rcd at 1987, para. 4 (adopting a "methodology for generating the initial map of areas presumptively eligible for MF-II support, i.e., those areas lacking unsubsidized qualifying coverage by any provider").

[31] *See id.* at 1987-88, paras. 4-5.

[32] *MF-II Challenge Process Order*, 32 FCC Rcd at 6303-04, paras. 42-43.

[33] *Id.* at 6296-97, para. 29; *MF-II Challenge Process Handsets and Portal Access PN*, 32 FCC Rcd at 10375-76, paras. 7-10.

providers' pre-approved handset models.[34] The Commission adopted the requirement that challengers use one of the handsets specified by the provider primarily to avoid inaccurate measurements resulting from the use of an unsupported or outdated device—e.g., a device that does not support all of the spectrum bands for which the provider has deployed 4G LTE.[35] The window to file challenges was open from March 29, 2018, through November 26, 2018.[36]

20. During the eight-month challenge window, 106 entities were granted access to the MF-II Challenge Portal.[37] Of the 106 entities granted access to the MF-II Challenge Portal, 38 were mobile service providers required to file Form 477 data, 19 were state government entities, 27 were local government entities, 16 were Tribal government entities, and six were other entities that filed petitions requesting, and were each granted, a waiver to participate.[38]

21. During the window to file challenges in the MF-II challenge process, 21 challengers submitted 20.8 million speed tests across 37 states.[39] Of these submitted tests, the Challenge Portal validated approximately 20.5 million speed tests and these tests were thus considered to be valid challenges.[40] Challengers then certified almost 19.8 million valid tests by the close of the challenge window. Approximately 4 million speed tests fell outside of the reported 4G LTE coverage area for the provider tested—leaving approximately 15.9 million tests within areas reported as covered.[41]

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[34] *MF-II Challenge Process Order*, 32 FCC Rcd at 6307-10, paras. 49-52.

[35] *See id.* at 6308, para. 50; *MF-II Challenge Process Handsets and Portal Access PN*, 32 FCC Rcd at 10372-73, 10375, paras. 3, 6 (declining to adopt a proposal to limit the cost of handsets because doing so would "reduce the accuracy of data collected . . . by limiting the number of handsets compatible with the latest versions of drive test software and mobile network technologies.").

[36] *MF-II Initial Eligible Areas Map PN*, 33 FCC Rcd at 2041 (announcing that the challenge window would open on March 29, 2018 and conclude on August 27, 2018); *Connect America Fund; Universal Service Reform – Mobility Fund*, Order, Notice of Proposed Rulemaking, and Memorandum Opinion and Order, 33 FCC Rcd 8463, 8465, para. 6 (2018) (*MF-II Challenge Process Extension Order*) (extending the challenge window by 90 days to run through November 26, 2018).

[37] *Mobility Fund Phase II Challenge Process Portal Update: November 2018*, Public Notice, 33 FCC Rcd 11706 (WCB/WTB 2018) (*November MF-II Challenge Portal Update PN*).

[38] *See, e.g.*, *Petition of the Mississippi Farm Bureau Federation for Waiver to Participate in Mobility Fund II Challenge Process*, Order, 33 FCC Rcd 8093 (WTB 2018); *see also MF-II Challenge Process Handsets and Portal Access PN*, 32 FCC Rcd at 10376, para. 10; *MF-II Challenge Process Order*, 32 FCC Rcd at 6304, para. 43 n.119. No petitions to participate in the challenge process were denied.

[39] *November MF-II Challenge Portal Update PN*, 33 FCC Rcd at 11706. While challenger speed tests reported a variety of measurement methods and measurement applications, the vast majority of speed tests submitted by challengers appeared to be drive tests where speed readings were recorded at frequent intervals (i.e., every 1-2 seconds) along the route driven. Three Tribal government entities submitted 4,869 speed tests across four states (Idaho, Washington, Kansas, and Nebraska).

[40] The USAC MF-II Challenge Portal system performed automated validation on speed test data submitted by challengers, rejecting as invalid any speed tests that failed specific validation checks. For example, among other checks, the system validated that each record: recorded the latitude and longitude of the test in decimal degrees with a precision of at least five decimal places; recorded a timestamp value between 6:00 AM and 12:00 AM (midnight) from Feb. 27, 2018 through the date of submission; and identified a valid combination of provider and device, per the list of providers' pre-approved handsets. *See Mobility Fund Phase II Data Specifications and Error Codes* (Mar. 20, 2018), https://www.usac.org/_res/documents/hc/pdf/MF-II-Challenge-Process_Data-Specifications.pdf.

[41] In order to facilitate analysis of challenger speed test data as compared to the coverage maps, we excluded tests that fell outside the reported coverage of the tested provider. We also excluded from our calculations, tables, and

22. As shown in Table 1, challengers submitted speed tests of all nationwide providers' networks, as well as some regional providers' networks. These data therefore included providers other than the three (Verizon, U.S. Cellular, and T-Mobile) for which staff were most concerned with overstated coverage. When aggregated across all challengers and states, 66.4% of challenger-submitted speed tests recorded no download speed whatsoever and 87.2% of the submitted challenger speed tests recorded download speeds below the minimum speed required (5 Mbps). A detailed analysis of the challenger speed testing is provided in Appendix B, and the full dataset of those speed tests is available for download on the Commission's website.[42]

Table 1. Within-Coverage, Certified Challenger Speed Test Results by Provider Challenged

Provider Name	Test Count Zero Mbps	Test Count > 0 & < 5 Mbps	Test Count ≥ 5 Mbps	Test Count Total	Percentage ≥ 5 Mbps
Verizon	5,724,909	1,453,000	1,016,652	8,194,561	12.41%
T-Mobile	2,615,362	1,158,577	170,025	3,943,964	4.31%
AT&T	1,970,651	629,014	778,859	3,378,524	23.05%
Sprint	167,767	55,419	63,197	286,383	22.07%
US Cellular	468	2,216	387	3,071	12.60%
All Other Providers	99,756	18,449	2,795	121,000	2.31%
Total	**10,578,913**	**3,316,675**	**2,031,915**	**15,927,503**	**12.76%**

23. Under the framework adopted by the Commission, the USAC MF-II Challenge Portal system validated challenger-submitted speed tests by overlaying a uniform grid of one square kilometer cells and determining whether challengers submitted evidence of insufficient coverage in at least 75% of the challengeable portion of each grid cell.[43] Across the 126,164 grid cells for which challengers submitted and certified challenges, speed tests with download speeds of less than 5 Mbps meeting the 75% coverage threshold were certified in 45,309 grid cells (36% of the challenged grid cells), and were thus presumptively successful challenges.[44]

charts an additional 170 speed tests for T-Mobile and one speed test for Verizon that recorded a negative download speed or a positive signal strength RSRP, which are clearly erroneous data that were not rejected during automated system validations. An analysis quantifying anomalous and erroneous data within the challenger speed test results is included in Appendix B.

[42] The complete challenger speed test data associated with valid, certified challenges can be downloaded at https://www.fcc.gov/mobility-fund-phase-2#data, alongside the file specifications for these data files. Please note that certain data fields have been masked to maintain the confidentiality of entities that submitted challenges.

[43] *MF-II Challenge Process Order*, 32 FCC Rcd at 6310-11, paras. 53-57.

[44] While challengers were required to submit data for all speed tests, including those showing speeds greater than or equal to 5 Mbps, the system calculated whether a challenger had submitted evidence covering 75% of the challengeable portion of each grid cell only considering tests with download speeds below 5 Mbps. *MF-II Challenge Process Procedures PN*, 33 FCC Rcd at 2013-14, para. 66. The Commission, however, emphasized that staff would adjudicate each challenge on a preponderance-of-the-evidence standard based on all the evidence submitted by challengers and challenged parties, irrespective of the presumptive status calculated by the system. *MF-II Challenge Process Order*, 32 FCC Rcd at 6313, para. 63 & n.180 (adopting "a preponderance of the evidence standard to evaluate the merits of any challenges" but retaining "discretion to discount the weight of a challenger's evidence if a challenge appears designed to undermine the goals of MF-II").

24. *Allegations of Inaccurate MF-II Coverage Data*. While the challenge process was underway, certain parties raised concerns in the record about the accuracy of the coverage maps submitted by certain nationwide providers.[45] Smith Bagley (d/b/a Cellular One) submitted maps of its service area in Arizona overlaid with Verizon's publicly-stated 4G LTE coverage and the preliminary results of drive tests that Smith Bagley had conducted.[46] Smith Bagley asserted that, for large stretches of road in areas where Verizon reported coverage, its drive testers recorded no 4G LTE signal on Verizon's network.[47] Smith Bagley argued that the "apparent scope of Verizon's inaccurate data and overstated coverage claims is so extensive that, as a practical matter, the challenge process will not and cannot produce the necessary corrections."[48]

25. The Vermont Department of Public Service also participated in the challenge process "primarily to demonstrate that good cause exists to expand the territory that is deemed eligible" for MF-II support.[49] As part of a public report detailing its experience, Vermont published a map showing its speed test results which contradicted the coverage maps in Vermont of U.S. Cellular, T-Mobile, and Verizon, among others. This map included information on the approximately 187,000 speed tests submitted by Vermont, including download speed, latency, and signal strength.[50] In the report, Vermont detailed that 96% of speed tests for U.S. Cellular, 77% for T-Mobile, and 55% for Verizon failed to receive download speeds of at least 5 Mbps.[51]

26. The Rural Wireless Association (RWA) similarly criticized the coverage data submitted by Verizon and later by T-Mobile. RWA initially submitted a map created by engineers working for RWA member Panhandle Telecommunication Systems, Inc. (Panhandle) that estimated Verizon's coverage in the Oklahoma panhandle to cover less than half of the area Verizon publicly claims to be

[45] *See Universal Service Reform – Mobility Fund*, WC Docket No. 10-90, WT Docket No. 10-208, Informal Request of the Rural Wireless Association, Inc. for Commission Action (Aug. 6, 2018) (First RWA MF-II Informal Request); *Universal Service Reform – Mobility Fund*, WC Docket No. 10-90, WT Docket No. 10-208, Informal Request of the Rural Wireless Association, Inc. for Commission Action (Dec. 26, 2018) (Second RWA MF-II Informal Request); *Universal Service Reform – Mobility Fund*, WC Docket No. 10-90, WT Docket No. 10-208, Informal Request of Smith Bagley, Inc. for Commission Action (Oct. 18, 2018) (SBI MF-II Informal Request); Letter from Caressa D. Bennet, General Counsel, RWA, and Erin P. Fitzgerald, Regulatory Counsel, RWA, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90, WT Docket No. 10-208 (Apr. 20, 2018) (April 20, 2018 RWA *Ex Parte* Letter); Letter from Mark Seagren, CTO/Senior RF Engineer, 4G Unwired, Inc., Lynn R. Merrill, P.E., President and CEO, Monte R. Lee and Company, Howard Gorter, P.E., Executive Vice President, Engineering Operations, Palmetto Engineering & Consulting, and Jeff Little, President – Central Division, CT&T, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90, WT Docket No. 10-208 (July 5, 2018) (July 5, 2018 RF Engineering Coalition *Ex Parte* Letter).

[46] SBI MF-II Informal Request at Ex. B.

[47] *Id.* at 8-9; *id.* at Ex. B.

[48] *Id.* at 5.

[49] Letter from Caressa D. Bennet, General Counsel, RWA, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90, WT Docket No. 10-208 at Ex. 1 (Feb. 13, 2019) (Feb. 13, 2019 RWA *Ex Parte* Letter); Vermont Department of Public Service, Mobile Wireless in Vermont at 2 (2019), *available at* https://publicservice.vermont.gov/content/mobile-wireless-drive-test-report-january-2019 (Vermont Mobile Wireless Report).

[50] Vermont Mobile Wireless Report at 6; Vermont Wireless Drive Test Results, Vermont Department of Public Service, http://vtpsd.maps.arcgis.com/apps/webappviewer/index.html?id=444a3d49c2374d509958f1c0e1d0d21b (last visited Sept. 30, 2019).

[51] *See* Vermont Mobile Wireless Report at 4.

covered.[52] RWA subsequently asserted in an informal request for Commission action that the results of testing by Panhandle similarly "indicates that Verizon has overstated its coverage by more than 50 percent in the Oklahoma Panhandle."[53] RWA members, in coordination with a coalition of radiofrequency (RF) engineers, also raised specific concerns about technical assumptions made by Verizon in its propagation modeling.[54] In addition, RWA argued that T-Mobile's coverage was overstated in Alabama, Oklahoma, and Montana, where speed testing by three of its members showed that 95.8% of all tests failed to achieve download speeds of at least 5 Mbps.[55] RWA alleged that T-Mobile relied upon facilities with insufficient backhaul in Montana and additionally that in Oklahoma "the installation of the [backhaul] circuits occurred after the January 4, 2018 deadline [to submit 4G LTE data], meaning that the coverage claimed by T-Mobile could not have been in place prior to the January 4, 2018 deadline."[56]

27. Verizon and T-Mobile directly responded to several of the claims made by RWA and its members. Verizon argued that the map submitted by Panhandle "underestimates Verizon's Mobility Fund coverage because it fails to take into account all of the Verizon cell sites that provide coverage to customers in the Oklahoma Panhandle."[57] Verizon also rejected the comparison to the Panhandle map because it did not reflect the standardized parameters adopted for MF-II, and because it "reflects an uplink constraint, which the Commission specifically declined to include in the Mobility Fund mapping specifications."[58] Additionally, Verizon specifically responded to a number of technical claims made by RWA's engineers, explaining that it used more than 2,500 separately-calibrated propagation models for different markets to generate the MF-II coverage map.[59]

28. T-Mobile similarly rejected RWA's contention that its coverage maps were incorrect because they did not reflect service as of January 2018. Citing its required construction notifications on file with the Commission, T-Mobile explained that it "was required to provide signal coverage and offer service to at least 40 percent of the geographic area covering each of the three licenses [for which it received a waiver of the Commission's rules] and file the necessary construction notifications with the Commission by January 21, 2018."[60]

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[52] April 20, 2018 RWA *Ex Parte* Letter, App. C at 6.

[53] First RWA MF-II Informal Request at 6.

[54] Letter from Caressa D. Bennet, General Counsel, RWA, and Erin P. Fitzgerald, Regulatory Counsel, RWA, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90, WT Docket No. 10-208 at Attachment A, Attachment B (Apr. 30, 2018); July 5, 2018 RF Engineer Coalition *Ex Parte* Letter at 4-5; Letter from Mark Seagren, CTO/Senior RF Engineer, 4G Unwired, Inc., Lynn R. Merrill, P.E., President and CEO, Monte R. Lee and Company, Howard Gorter, P.E., Executive Vice President, Engineering Operations, Palmetto Engineering & Consulting, and Jeff Little, President – Central Division, CT&T, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90, WT Docket No. 10-208 at 1-3 (Aug. 3, 2018) (Aug. 3, 2018 RF Engineering Coalition *Ex Parte* Letter). These parties generally assert that Verizon's propagation models did not adequately account for local terrain and clutter conditions.

[55] Second RWA MF-II Informal Request at 5-7, 8-9.

[56] *Id.* at 8-10, 14-15 (emphasis removed).

[57] Letter from Alan Buzacott, Executive Director, Federal Regulatory Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 10-208, WC Docket No. 10-90 at 3 (July 27, 2018) (July 27, 2018 Verizon *Ex Parte* Letter).

[58] *Id.* at 3 (citing *MF-II Challenge Process Order*, 32 FCC Rcd at 6293, para. 19).

[59] *Id.* at 2-3.

[60] Letter from Cathleen A. Massey, Vice President, Federal Regulatory, T-Mobile, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90, WT Docket No. 10-208 at 6 & n.21 (Jan. 30, 2019).

29. No other provider that filed coverage data submitted anything in the record seeking to defend its maps.

30. *Initiation of the Coverage Map Investigation*. Considering the claims filed in the record, initially regarding Verizon's coverage, Commission staff requested information from Verizon about the parameters and other data used to generate its coverage maps. The information submitted by Verizon led the staff to become concerned about whether Verizon, as well as other providers, may have modeled their propagation in a way that did not account for any uplink channel capacity, and if that was the case, whether this could be responsible for inaccurate projections. In a mobile wireless network, the uplink channel refers to the uplink connection required for a user of a mobile device to transmit to a cell phone tower or building mounted antenna, and for that antenna to successfully receive the user's transmission. For a device to be able to upload data to a network, there must be an uplink connection and sufficient uplink channel capacity. Mobile Internet traffic requires both downlink transmission of data packets from the sender to the receiver (i.e., base station to handset) as well as uplink transmissions from the receiver to the sender (i.e., handset to base station) acknowledging receipt of packets as well as initiating transmission from the handset to the network.

31. In October and November 2018, staff made inquiries directly to each of the five largest providers—AT&T, Sprint, T-Mobile, Verizon, and U.S. Cellular—to better understand the assumptions underlying each provider's propagation models. In particular, staff inquired whether each provider's model used to generate its MF-II 4G LTE coverage data took into consideration an uplink channel constraint—that is, the limitation imposed by uplink channel capacity—and if so, what was the minimum uplink channel throughput (i.e., upload speed) assumed in the model.[61] Staff also asked whether the provider uses an uplink channel constraint when generating maps in its normal course of business. Three of the providers responded that their MF-II propagation models provided for sufficient uplink channel throughput.[62] U.S. Cellular and Verizon, however, responded that their MF-II propagation models did not take into account any uplink channel.[63] Staff requested additional propagation model details from Verizon, including link budget and infrastructure information in several of the areas identified by parties in the record as having insufficient coverage. Verizon responded with the technical parameters and infrastructure details requested by staff along with a request for confidential treatment of its response.[64]

[61] This report uses different terms to discuss different aspects of how uplink works in a mobile network. In order to provide users with an uplink speed, a network must first provide uplink coverage and then the network must have some uplink capacity. Uplink capacity only describes the uplink bandwidth, but a network needs to provide both uplink coverage and uplink capacity to provide users with uplink speed. The uplink constraint on a network — effectively, how far the network can project uplink coverage — could be either uplink coverage, uplink capacity, or both.

[62] From their responses to staff inquiries, AT&T confirmed that the uplink channel throughput associated with its maps was more than sufficient to sustain download speeds of 5 Mbps; Sprint stated that it used an uplink channel constraint of between {[ ]} and {[ ]}; and T-Mobile stated that it used an uplink constraint of {[ ]}. Material highlighted and set off by double brackets {[ ]} is redacted from the public version of this document.

[63] {[
]}

[64] Staff thereafter requested that Verizon generate and submit new 4G LTE coverage data that took into account an uplink channel constraint. After the staff request, Verizon initially indicated that it would be willing to file new coverage data that would take into account an uplink channel constraint, and that such data would be {[ ]}. However, prior to the date by which staff requested Verizon file new data, the Commission announced the launch of an investigation into whether one or more major providers violated the MF-II requirements. Verizon did not file the requested new coverage data.

32. Shortly after the close of the challenge window and considering the record evidence that called into question the accuracy of the submitted coverage map of at least one nationwide provider, staff conducted a preliminary review of the speed test data submitted during the MF-II challenge process. The staff review of challenger data, in combination with the record evidence focusing on specific areas in which coverage appeared to be overstated, suggested, among other things, that some providers had reported inaccurate coverage data to the Commission. Based upon this review and the providers' responses to staff inquiries, the Commission decided to launch a formal investigation of the MF-II 4G LTE coverage data submitted by certain providers. In announcing the start of the investigation into potential violations of the data collection rules, the Commission suspended the response phase of the challenge process pending conclusion of the investigation.[65] The staff investigation comprised collecting additional information from certain providers regarding their generation of coverage data, gathering independent speed test data to verify the challenger data, and analyzing specific allegations made in the record to evaluate the accuracy of the submitted coverage maps.

33. As part of the investigation, and based upon the responses to staff inquiries, subpoenas were served on Verizon and U.S. Cellular in December 2018 requesting detailed answers to questions pertaining to each provider's assumptions regarding its propagation models, as well as copies of internal communications related to the generation of the MF-II 4G LTE coverage data. Specifically, Commission staff asked each provider for details about the uplink and downlink channel capacity accounted for in its propagation models for both the MF-II 4G LTE coverage data (including any revisions submitted to the Commission) and as used in its normal course of business. Staff requested the basis for each provider's assertion that their MF-II 4G LTE coverage data submission met the Commission's requirements if it did not account for any uplink channel capacity.[66] The subpoena also asked each provider about its methodology for considering terrain variation and for specific parameters used in its link budget, including the target signal-to-interference-plus-noise ratio used to develop the maximum operational path loss for the downlink channel link budget. The providers were asked about differences between the propagation models used for the MF-II 4G LTE coverage data and other coverage data submitted to the Commission (including Form 477 and Form 601 construction notification filings) and whether the MF-II 4G LTE coverage maps reflect the data, spectrum, and network infrastructure each provider had in place at the time the coverage data were generated. Finally, the subpoena asked each provider to provide details on any drive testing or other measurements they had conducted to confirm the MF-II 4G LTE coverage data.

34. U.S. Cellular submitted all requested information in its subpoena response on February 22, 2019, and filed amended responses and updated declarations on March 19, 2019. In its subpoena response, U.S. Cellular clarified that it did initially account for an uplink channel link budget in preparing its maps for the MF-II 4G LTE coverage data collection.[67] U.S. Cellular explained that because the uplink channel link budget it used resulted in a higher maximum allowable path loss than the downlink channel it calculated, its coverage area for uplink applications was greater than (and entirely contained within) the coverage area for downlink applications.[68] As a result, according to U.S. Cellular, constraining the coverage area by the calculated uplink channel capacity was unnecessary and it therefore

[65] *See* News Release, FCC, FCC Launches Investigation into Potential Violations of Mobility Fund Phase II Mapping Rules (Dec. 7, 2018) (MF-II Coverage Map Investigation News Release).

[66] *See MF-II Challenge Process Order*, 32 FCC Rcd at 6302, para. 39 (requiring providers to model unspecified parameters as they would in the normal course of business).

[67] Responses of U.S. Cellular to Subpoena dated December 27, 2018 at 1 (File No. EB-IHD-18-00028278) (U.S. Cellular Subpoena Response).

[68] *Id*.

did not rely upon an uplink channel link budget to calculate coverage in its MF-II 4G LTE coverage data submission.[69] U.S. Cellular explained that the uplink channel link budget it initially considered would have resulted in a minimum upload speed of 64 kbps with an 80% cell edge probability and 30% cell loading factor.[70] Addressing the subpoena questions about the differences between its propagation models used for the MF-II 4G LTE coverage data and other coverage maps in its normal course of business, U.S. Cellular stated that the uplink channel link budget used to generate its maps {[

]}.[71] U.S. Cellular additionally provided the requested detailed technical parameters for both its uplink and downlink link budgets used by its propagation models.[72]

35. Verizon submitted narrative responses to subpoena questions in its subpoena response on February 19, 2019. Verizon submitted a supplemental production on March 8, 2019, privilege logs on March 18, 2019, and additional files on March 27, 2019. In its subpoena response, Verizon reiterated that it did not account for an uplink channel link budget in generating its MF-II 4G LTE coverage data,[73] but that it had subsequently estimated that the minimum upload speed for the area throughout its MF-II 4G LTE coverage would be 115 kbps.[74] Verizon asserted that this uplink channel capacity would have been sufficient to establish a downlink channel that met the specifications for MF-II.[75] Verizon further explained that, in its normal course of business and for other coverage maps that it generates (including those submitted to the Commission as part of its Form 477 filings and Form 601 notifications), Verizon's propagation model {[

]}.[76] Verizon also indicated that its MF-II propagation model assumed that the device was outdoors and stationary (as opposed to within a vehicle and in-motion), which it asserted could have resulted in drive test measurements recording lower performance than predicted by its model.[77] Additionally, Verizon provided the requested detailed technical parameters for the downlink channel link budget it used for its propagation model when generating the MF-II 4G LTE coverage data.[78]

36. Shortly after staff made inquiries to the providers, and concurrent with the initial staff review of challenger data, field agents from the Commission's Enforcement Bureau commenced a five-month effort to examine coverage data in certain MF-II 4G LTE areas by conducting their own speed tests, via a mix of drive and stationary testing. Staff conducted speed tests along six separate test routes

[69] *Id*.

[70] *Id*.

[71] *Id.* at 2.

[72] *Id.* at 2, 4.

[73] Responses of Verizon to Subpoena dated December 27, 2018 at 1 (File No. EB-IHD-18-00028219) (Verizon Subpoena Response).

[74] *Id.* at 8.

[75] *Id.*

[76] *Id.* at 4, 13-14.

[77] *Id.* at 10.

[78] *Id*. at Attachment A.

in 12 states, recording 24,649 drive tests and 5,916 stationary tests on the mobile networks of T-Mobile, U.S. Cellular, and Verizon.[79]

III. COMPARATIVE ANALYSIS OF THE MF-II 4G LTE COVERAGE DATA

37. In an initial analysis of the MF-II 4G LTE coverage data, staff compared the MF-II 4G LTE coverage data submitted by each provider with its then-most-recent Form 477 4G LTE coverage data. Given that the rationale for adopting the one-time collection of 4G LTE coverage data specifically for MF-II was to improve upon the accuracy of the Form 477 data, such comparison is useful to determine the extent to which standardizing the technical parameters affected each provider's coverage maps. Specifically, staff sought to determine whether allegations in the record that many providers' Form 477 4G LTE coverage data overstated their service area were correct, and to what extent standardizing propagation model parameters reduced any such overstatement.[80]

38. The difference in the area predicted to be within coverage between the MF-II data and the December 2017 Form 477 data varied significantly among the five largest providers (see Table 2).[81] AT&T, Sprint, and T-Mobile saw similar reductions of approximately 18-19% in the total area of 4G LTE coverage with the MF-II data as compared to their coverage reported on Form 477. Verizon and U.S. Cellular, however, reported modest *increases* in their MF-II 4G LTE coverage compared to their Form 477 submissions from similar timeframes.

Table 2. Comparison of 4G LTE Coverage Area Dec. 2017 Form 477 vs. MF-II Collection

Provider Name	4G LTE Coverage (Form 477 Only)	4G LTE Coverage (MF-II Only)	Percent Difference Form 477 vs. MF-II
AT&T	5,287,563 sq. km	4,276,681 sq. km	-19.12%
Sprint	2,546,499 sq. km	2,086,801 sq. km	-18.05%
T-Mobile	5,376,006 sq. km	4,329,075 sq. km	-19.47%
U.S. Cellular	1,024,633 sq. km	1,029,916 sq. km	0.52%
Verizon	6,489,764 sq. km	6,583,288 sq. km	1.44%

39. Staff additionally compared coverage data among providers. This comparison suggests that some providers refined their projections for the MF-II data collection, while others submitted coverage data that were substantially similar to the unstandardized Form 477 maps. For example, AT&T's coverage data show substantial differences between its Form 477 coverage and the significantly smaller coverage in its MF-II data (see Figure 1), with clear delineations apparent for individual cell sites. While we are unable to confirm that AT&T's MF-II coverage map based on MF-II parameters is necessarily more accurate than its Form 477 filing, the modeled MF-II propagation map has less uniformity and more precise definition. Staff engineers found that these characteristics could be indicative of realistic coverage experienced on the ground, where gaps in coverage would be expected due to the statistical nature of the link channel. On the other hand, for both Verizon and U.S. Cellular, the providers' MF-II coverage and their Form 477 coverage cover broadly the same area without much

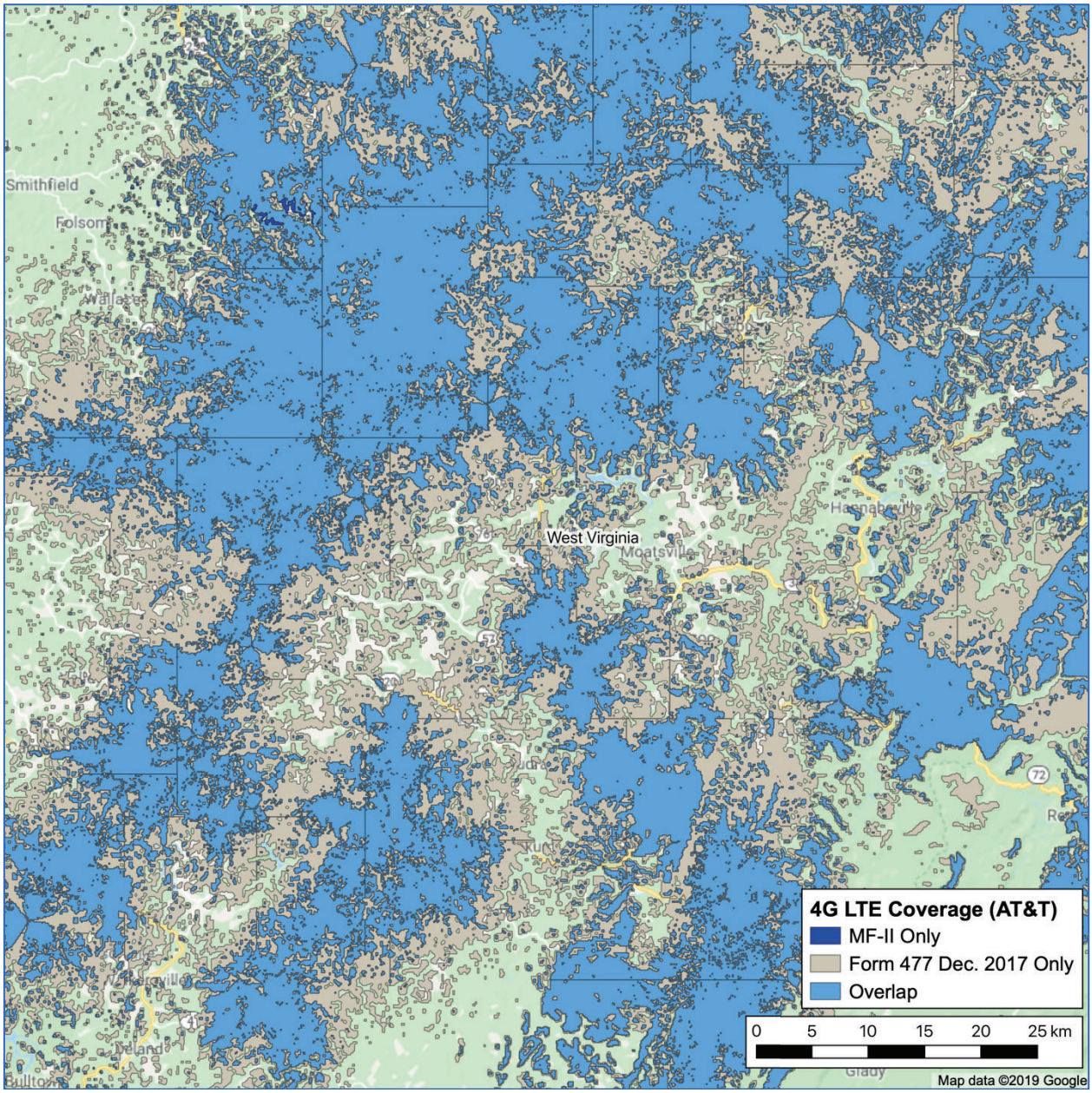
[79] We exclude staff speed tests that were conducted outside of each provider's submitted 4G LTE coverage area.

[80] This comparative analysis led to the staff's recommendation for the Commission to explore further the accuracy of mobile wireless providers' Form 477 data.

[81] We have calculated the 4G LTE coverage area for each of the providers excluding any coverage in Alaska, Puerto Rico, or the U.S. Virgin Islands, as those states or territories were not included as part of MF-II.

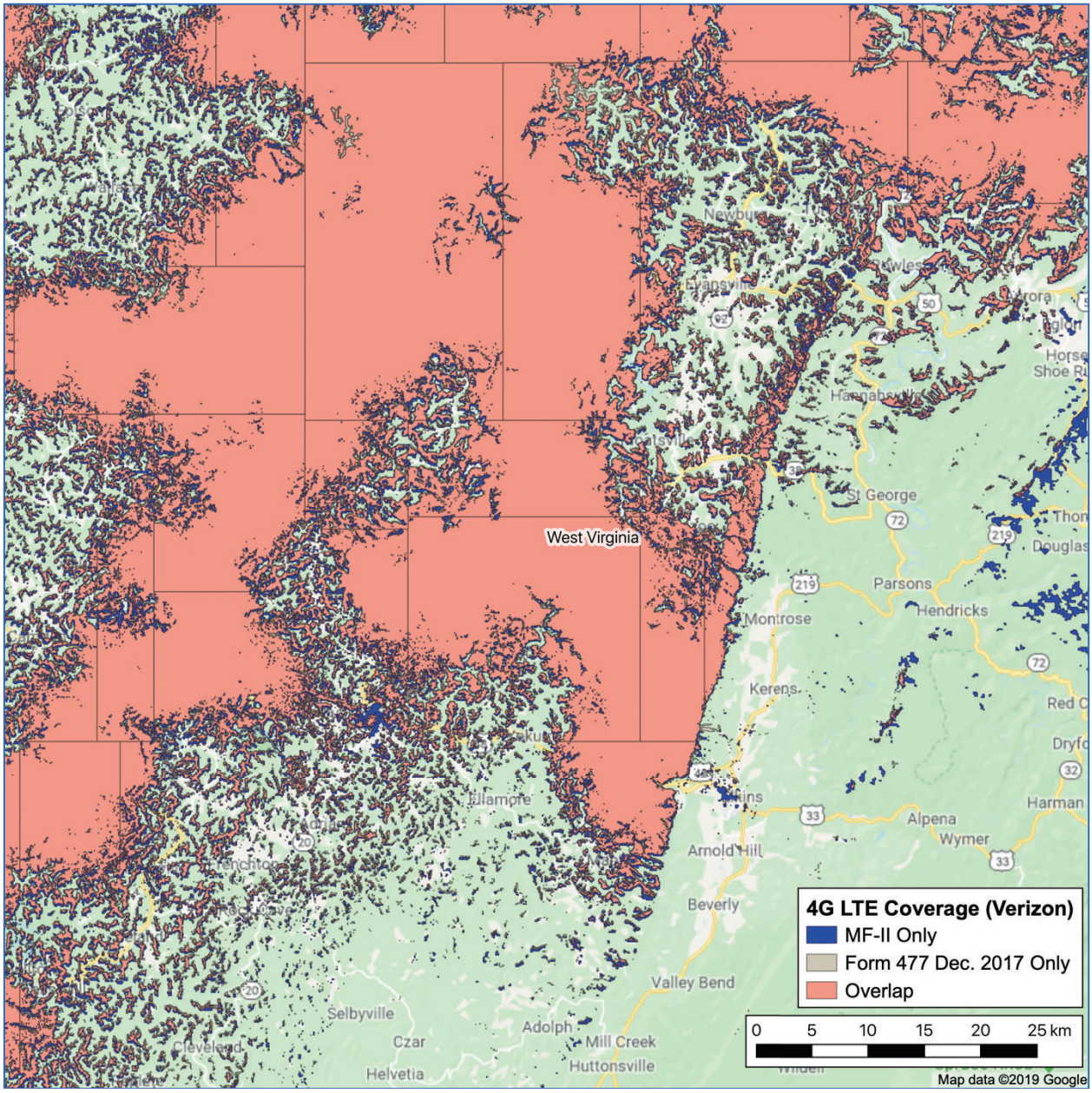
noticeable difference in the pattern of their modeled propagation, and with the two datasets often overlapping in their entirety (see Figure 2 and Figure 3).

Figure 1. AT&T 4G LTE Coverage in West Virginia (MF-II vs. Form 477)[82]



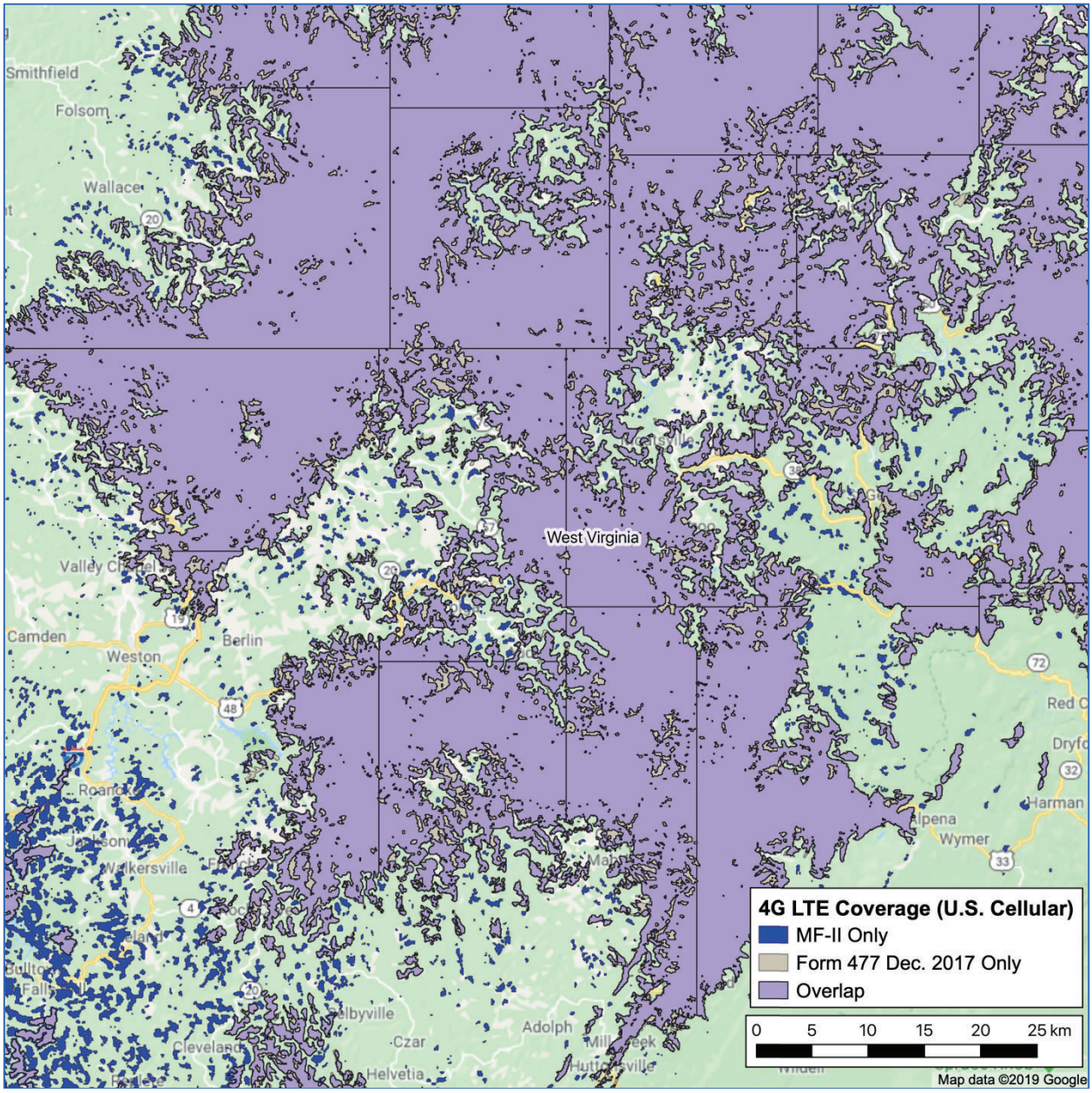
[82] Because the maps in Figure 1, Figure 2, and Figure 3 contain provider-specific coverage data that the Commission has now released, these three figures have not been redacted. *See Rural Broadband Auctions Task Force Releases Mobility Fund Phase II 4G LTE Coverage Maps*, Public Notice, DA 20-525 (WCB/WTB/OEA May 18, 2020).

Figure 2. Verizon 4G LTE Coverage in West Virginia (MF-II vs. Form 477)[83]



[83] *See supra* note 82.

Figure 3. U.S. Cellular 4G LTE Coverage in West Virginia (MF-II vs. Form 477)[84]



40. The areas predicted by Verizon and U.S. Cellular's propagation models to have coverage are effectively identical for most areas when comparing between the provider's MF-II 4G LTE coverage and its December 2017 Form 477 coverage. Conversely, AT&T's propagation models predicted a smaller area to have coverage when using the MF-II parameters, and the shapes generated by that model appear to better reflect the real-world characteristics of RF propagation, especially at the apparent edge of cells.

41. We acknowledge that these datasets may not be directly comparable due to differences in the provider's use of standardized versus non-standardized link budget parameters (e.g., cell edge probability, cell loading factor, etc.). In addition, the Form 477 coverage data depict the boundaries

[84] *See supra* note 82.

where users should expect to receive a set of minimum advertised speeds (both upload and download) submitted by the provider, which may differ from the 5 Mbps download speed standard for MF-II. Some providers may, for example, have modeled their Form 477 4G LTE coverage using a stricter specification—e.g., a higher minimum download speed—than was required for MF-II, which could result in an increased coverage depicted in their MF-II maps as compared to Form 477 coverage. Others may have used a less strict specification in their Form 477 coverage models, which could result in decreased coverage depicted in their MF-II maps as compared to Form 477 coverage.

42. The two sets of coverage data are also not necessarily contemporaneous snapshots of 4G LTE coverage. For its MF-II 4G LTE coverage data, a provider was permitted to model its network as of any time between August 4, 2017, and the deadline to submit its data, January 4, 2018, whereas for its Form 477 filing, the data was required to be current as of December 31, 2017. As such, some difference between Form 477 and MF-II coverage could be the result of deployment subsequent to the date a provider generated its MF-II 4G LTE coverage data if it did so prior to the end of December.[85] Consequently, by themselves, changes in the total area covered do not necessarily indicate a problem.

43. Staff engineers, however, found that AT&T's adjustments to its model to meet the MF-II requirements may have resulted in a more realistic projection of where consumers could receive mobile broadband. This suggests that standardization of certain specifications across the largest providers could result in coverage maps with improved accuracy. Similarly, the fact that AT&T was able to submit coverage data that appear to more accurately reflect MF-II coverage requirements raises questions about why other providers did not do so. And while it is true that MF-II challengers submitted speed tests contesting AT&T's coverage data, unlike for other major providers, no parties alleged in the record that AT&T's MF-II coverage data were significantly overstated.

IV. UPLINK CHANNEL INQUIRIES

44. Mobile broadband requires uplink channel capacity in order to generate a two-way mobile data transmission at any speed. Specifically, network protocols operating on the transport layer (such as TCP/IP, which is used for Internet traffic) require both downlink transmission of data packets from the sender to the receiver (i.e., base station to handset) as well as uplink transmissions from the receiver to the sender (i.e., handset to base station) acknowledging receipt of packets and/or initiating transmission. As such, in order to achieve download speeds of at least 5 Mbps, per the *MF-II Challenge Process Order*, some minimal speed in the uplink direction to provide this return link (i.e., handset to base station) is required. As the Commission recognized, there exists an "interplay between download and upload speeds when designing and optimizing an LTE network."[86] According to an analysis submitted into the record, uplink speeds may vary widely, with most of the measured uplink data rates being from around 64 kbps to well in excess of 1 Mbps.[87] But in all cases, a mobile network requires an uplink speed to function.

45. When not otherwise specified, the *MF-II Challenge Process Order* directed providers to "use the optimized RF propagation models and parameters used in their normal course of business" in

[85] This appears to be the case in particular for T-Mobile, which was at the time deploying new 600 MHz band spectrum in certain markets. *See* Letter from Michael A. Lewis, Senior Engineering Advisor, DLA Piper LLP, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 16-306, GN Docket No. 12-268 (filed on June 1, 2017) (detailing 4G LTE expansion planned in 2017 using 600 MHz spectrum). When comparing the MF-II 4G LTE coverage to its June 2017 Form 477 4G LTE coverage, there is a much smaller 5.39% reduction in area.

[86] *MF-II Challenge Process Order*, 32 FCC Rcd at 6293, para. 19.

[87] *See* Petition of T-Mobile USA, Inc. for Reconsideration, WC Docket No. 10-90, WT Docket No. 10-208 (filed Apr. 27, 2017).

preparing their 4G LTE coverage data for submission.[88] Although the Commission specified some of the parameters that providers were to use in the data collection, providers were afforded flexibility to use the parameters that they used in their normal course of business when parameters were not specified by the Commission. For example, the Commission did not specify fading statistics or clutter loss values, and providers were required to model these factors as they would in the normal course of business. Because the Commission did not specify the uplink channel constraint that each provider was to use in its model, providers were expected to account for uplink channel capacity as they would in the normal course of business. Not surprisingly, in the pre-subpoena inquiries, staff learned from multiple providers that they had accounted for an uplink channel in their models.

46. In general, if a provider failed to properly account for an uplink channel corresponding to the downlink requirements when generating its coverage data, it could result in overstated coverage. This is because the downlink speeds projection could indicate coverage in some areas in which the propagation model would not predict to have an uplink connection with sufficient capacity for the specified downlink speeds. If such an uplink channel constraint had been considered in the model, the projected downlink coverage could be smaller when the uplink is the limiting link. During the challenge process, staff received complaints in the record about Verizon's coverage maps.[89] Verizon and U.S. Cellular told staff that the propagation models used to generate their submitted MF-II coverage data did not include an uplink channel constraint. Accordingly, staff served subpoenas on Verizon and U.S. Cellular to obtain more detailed information on each provider's uplink channel assumptions in its propagation models to determine whether the MF-II data collection requirements had been followed.

47. Based upon the explanations and link budget details given by U.S. Cellular in its subpoena response, staff concluded that U.S. Cellular had, in fact, taken into account uplink channel capacity in its propagation models when it generated its MF-II 4G LTE coverage data. Notwithstanding its response to the pre-subpoena inquiries that the uplink channel was not considered, U.S. Cellular's subpoena response clarified that the "uplink channel budget was considered and accounted for, but not used in preparing the map because it would have created greater coverage than the downlink channel budget, which contained the parameters the FCC required to be included for determining coverage at the required download speeds."[90] Moreover, U.S. Cellular's explanation is consistent with its description of how it accounts for the uplink channel link budget when generating coverage maps in its normal course of business. Specifically, U.S. Cellular stated that it models propagation using both uplink and downlink channel link budgets and then uses the limiting link (i.e., the link with smaller path loss) to determine coverage.[91] Because it modeled both the uplink and downlink channel in accordance with the technical specifications required for MF-II, and used the limiting link—in this case, the downlink channel—to create its 4G LTE coverage, U.S. Cellular's approach was consistent with the MF-II data collection requirements.

48. Verizon, on the other hand, did not take into account uplink channel capacity in its propagation models when it generated and submitted its 4G LTE coverage data. In its subpoena response, Verizon stated that it "did not account for an Uplink Channel Link Budget in its MF-II Data," and that, "Verizon did not use an Uplink Channel Link Budget to develop its MF-II Data."[92] Verizon argued that it nonetheless complied with the requirements of the *MF-II Challenge Process Order* based upon its

[88] *MF-II Challenge Process Order*, 32 FCC Rcd at 6302, para. 39.

[89] *See supra* nn. 45, 54 (complaints filed in the record about Verizon's coverage).

[90] U.S. Cellular Subpoena Response at 1.

[91] *Id.* at 1-2, 6.

[92] Verizon Subpoena Response at 1, 7.

interpretation of those regulations, which, it argued, did not "allow for an uplink constraint" and, moreover, was the only reasonable interpretation of the requirements.[93] Verizon simultaneously explained that in the normal course of business it models propagation {[ ]} when generating coverage and that an uplink is necessary to establish a downlink for mobile service.[94]

49. Verizon asserted that not accounting for an uplink channel link budget was inconsequential for its MF-II coverage maps.[95] In its response, Verizon estimated that the upload speed within its MF-II coverage area would be at least 115 kbps, with an 80% cell edge probability and 30% cell loading factor, and that an uplink speed of 115 kbps would be "sufficient to establish a Downlink that meets the . . . 5 Mbps download speed requirement."[96] Thus, Verizon asserted that the absence of an uplink channel link budget in its model had not led it to submit coverage maps where the upload speed would be insufficient to achieve the required download speeds.[97]

50. Verizon misconstrues the Commission declining to adopt an *upload speed benchmark* as an affirmative requirement to ignore entirely any consideration of an *uplink channel link budget*, irrespective of how a provider would account for the uplink channel in its normal course of business.[98] Moreover, in making this argument, Verizon disregards the fact that some uplink channel capacity is required to facilitate the two-way communication necessary for a mobile device to achieve download speeds of at least 5 Mbps.[99] Nonetheless, staff engineers reviewed the coverage maps and link budgets

[93] *Id.* at 1-5 ("The Commission rejected the use of an upload speed requirement and instead adopted standards for the submission of MF-II Data that do not contemplate or *allow* for an uplink constraint."), ("[T]he *only* interpretation of the *MF-II Second R&O* that is consistent with the Commission's objective of standardizing mapping parameters is that all carriers were required to develop their MF-II Data using *solely* the Downlink Channel Link Budget.") (emphasis added). Verizon further claimed that because, according to Verizon, the Commission had directed providers not to use an uplink constraint, the uplink constraint was wholly exempt from the "normal course of business" requirement that applied to parameters not otherwise specified by the rules, *id.* at 5, in effect arguing that any provider that had accounted for uplink capacity had deviated from the requirements. *Id.* at 2-3, 5-6 ("[T]he *MF-II Second R&O* could not reasonably be interpreted as permitting carriers to decide on their own to include some uplink constraint.").

[94] *Id.* at 4, 7.

[95] *Id.* at 8.

[96] *Id.* at 1, 8.

[97] *Id.* at 8.

[98] An upload speed benchmark (i.e., the target throughput) is merely one component of an uplink channel link budget, and in the absence of an expressly defined parameter, the Commission's requirement was to use the "RF propagation models and parameters used in [the provider's] normal course of business." *MF-II Challenge Process Order*, 32 FCC Rcd at 6302, para. 39. While it is true that a provider may have had to modify its uplink budget in light of the specified parameters to project coverage accurately, it was unreasonable for a provider to ignore the uplink channel in its entirety when generating its MF-II coverage data. To the extent that Verizon believed that the uplink channel assumptions it uses in its normal course of business were otherwise inconsistent with the objectives of the MF-II collection, it could have sought reconsideration of the data collection rules or it could have sought a waiver to allow it to model propagation based upon the particular characteristics of its network. Alternatively, Verizon could have modified how it treats the uplink channel, consistent with its standard engineering practices used in the normal course of business, in order to more accurately model those areas that should achieve the target download speed (such as {[ ]}).

[99] It would have been inconsistent with the objectives of MF-II for the Commission to adopt a mobile download speed benchmark and then require a provider to claim coverage where the provider's model would predict

that Verizon submitted in other proceedings and found little variation between those filings and the MF-II coverage maps. Staff did not find evidence indicating that Verizon's model or its coverage projections were clearly unreasonable.

51. Verizon's coverage maps for MF-II were also not significantly different from its Form 477 filings, and Verizon stated that it {[ ]}[100] And after review of the data, subpoena responses, and document production, staff was unable to determine that Verizon's failure to account for an uplink channel link budget in its MF-II coverage data was a significant factor affecting the accuracy of the area it determined had 4G LTE coverage meeting the Commission's specifications. Based on the totality of the circumstances, staff concluded that an enforcement action was not warranted.

V. MOBILE SPEED TESTING AND ANALYSIS OF SPEED TEST DATA

52. To provide the Commission with its own speed test data that could be used to evaluate the accuracy of the submitted coverage maps and verify the challenger data, staff field agents conducted on-the-ground mobile network speed testing of three providers' networks in six areas of the country over a period of five months. The purpose of this testing was to provide the Commission with independent speed tests that staff could rely upon because the tests were taken using standardized methods and equipment. The decisions as to which geographic areas and provider networks to test were informed by submissions in the record questioning Verizon's and T-Mobile's coverage and by the challenger speed test data. Staff primarily attempted to confirm the assertions made by RWA and SBI in their respective informal requests for Commission action about the sufficiency of the coverage maps submitted by Verizon and T-Mobile in several states.[101] Staff additionally attempted to confirm results published by the Vermont Department of Public Service for Verizon and U.S. Cellular.[102] The on-the-ground testing consisted of both app-based drive testing and stationary testing along select routes, primarily in Arizona, New Mexico, Oklahoma, Vermont, Alabama, and Montana.[103]

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insufficient uplink channel necessary to achieve the target download speed for mobile devices. And this argument is even more at odds with the objectives of MF-II when considering Verizon's even bolder claims that the Commission *prohibited* providers from including an uplink constraint in their models and that Verizon's coverage map met the requirements even if it could be shown that the projected coverage had insufficient uplink for the required downlink. Verizon Subpoena Response at 8 ("Verizon's MF-II Data would comply with the *MF-II Second R&O* even if *it were possible to show that the uplink speed may not be sufficient* to establish a Downlink in an area shown as covered.") (emphasis added).

[100] *Id.* at 11.

[101] *See* SBI MF-II Informal Request at Ex. B, Ex. C (identifying areas in Arizona for which SBI's contractor tested Verizon's network); First RWA MF-II Informal Request at 4-6 (claiming that Verizon's coverage is incorrect throughout the Oklahoma Panhandle); Second RWA MF-II Informal Request at 5-7, 8-9 (claiming that T-Mobile's coverage is incorrect in Alabama, Oklahoma, and Montana, in addition to identifying particular areas in Montana where RWA claims T-Mobile had insufficient backhaul capacity).

[102] Vermont PSD Mobile Wireless Report; Vermont Wireless Drive Test Results, Vermont Department of Public Service, http://vtpsd.maps.arcgis.com/apps/webappviewer/index.html?id=444a3d49c2374d509958f1c0e1d0d21b (last visited Sept. 30, 2019).

[103] While the drive test routes and stationary test locations primarily fell in these six states, and are identified as such in the tables below, some tests for particular test routes were also taken in neighboring states (e.g., some tests associated with the Montana test route were taken just across the state border in Wyoming and North Dakota). *See supra* note 1.

53. A detailed summary of the speed testing conducted by staff is provided below, and the full dataset of those speed tests is available for download on the Commission's website.[104] Staff performed geospatial processing on speed test data using geographic information system software. We have excluded from this dataset and our analyses any staff speed tests that were conducted outside of the areas identified in the respective provider's coverage maps. While staff took care to minimize discrepancies, we acknowledge that differences between geographic information system software platforms, computational precision, and processing steps may lead to slightly different results even when using the same source data.

54. The staff speed testing revealed significant discrepancies between the coverage maps generated by the providers whose networks were tested and the actual, on-the-ground mobile experience, as measured by the speed tests. For the consumer experience to reflect the service predicted in the coverage maps, a mobile device should receive 4G LTE service with a download speed of at least 5 Mbps with an 80% probability at the cell edge, which corresponds to a 92% probability within the area reported to have coverage.[105] That is, a set of speed tests taken uniformly throughout the cell area should achieve the required download speeds 92% of the time, whereas tests taken exclusively around the cell edge should achieve such speeds 80% of the time. The staff speed tests were not necessarily taken uniformly throughout the cell area, but nevertheless we would expect that tests recorded within the predicted coverage area would achieve download speeds of at least 5 Mbps 80% of the time or more. The staff speed test data did not approach the 92% threshold for any route-provider combination and in fact achieved the required download speed for less than 80% of tests across every route tested.

A. Test Methodology

55. For each speed test route, staff conducted in-motion drive tests as well as a number of stationary tests, both using an app-based testing platform customized for the Commission.[106] Based upon the speed test configuration parameters using a one-second "inter-test delay"[107] and two-second "inter-cycle delay,"[108] the app recorded one test approximately every 20 seconds along the drive test route or at each stationary test location.

[104] The staff speed test data can be downloaded at https://www.fcc.gov/mobility-fund-phase-2#data.

[105] *MF-II Challenge Process Order*, 32 FCC Rcd at 6300, para. 36; *see also* Christophe Chevallier et al., WCDMA (UMTS) Deployment Handbook: Planning and Optimization Aspects 33 Figure 2.6 (1st ed. 2006); D. O. Reudink, Microwave Mobile Communications 126-28 Figure 2.5-1 (William C. Jakes ed. 2d ed. 1974). We recognize that there may be discrepancies between coverage maps and on-the-ground performance because the assumptions made in the propagation model may not necessarily reflect actual conditions at the time of measurement.

[106] The Commission used a version of the FCC Speed Test app developed by SamKnows Ltd. modified to run continuous tests throughout the coverage area and that is thus better suited for the drive testing conducted by staff. This functionality differs from the publicly-available FCC Speed Test app, which is designed to run on-demand, user-initiated speed tests. *See, e.g.*, FCC Speed Test, Apple App Store, https://apps.apple.com/us/app/fcc-speed-test/id794322383 (last visited Nov. 26, 2019); FCC Speed Test, Apps on Google Play, https://play.google.com/store/apps/details?id=com.samknows.fcc (last visited Nov. 26, 2019).

[107] Inter-test delay controls how long the app pauses between completing and initiating a new test metric (i.e., measuring download speed and measuring latency, which are measured separately).

[108] Inter-cycle delay controls how long the app pauses between completing and initiating a new test (comprised of a set of test metrics including both latency and download speed measurements).

56. EB field agents conducted in-motion drive testing using the following standardized test procedures:

- The agent turned off all other phones in the vehicle (including any modem built into the test vehicle) and configured the test handsets in the vehicle.
- The agent recorded the date and time that testing commenced.
- The agent then initialized the measurement application on the test handsets and drove along a pre-planned route with a "not-to-exceed" vehicle speed of between 35 and 60 miles per hour (depending on the route), while monitoring the measurement app for any errors.
- After completing the drive test route, the agent stopped the app and noted the date and time that testing concluded.
- The agent then evaluated and verified recorded data using a laptop.
- For most routes, the agent repeated the same testing steps while driving along the route in the opposite direction.[109]

57. EB field agents also conducted stationary testing using the following standardized test procedures:

- At selected locations along the drive test routes,[110] the agent stopped the vehicle, turned off all other phones (including any modem built-in to the test vehicle), and configured the test handset to perform tests outside of the vehicle.
- The agent recorded the date and time that testing commenced, as well as the geographic coordinates of the location.
- The agent then initialized the measurement application on the test handsets.
- After continuous testing for between one and two hours,[111] the agent stopped the app and noted the date and time that testing concluded.
- The field agent then evaluated and verified recorded data using a laptop.

58. All tests were conducted using a Samsung Galaxy S9 handset (model SM-G960U1), which was mounted in a vehicle for the drive tests. We note that the staff speed tests were conducted approximately one year after providers submitted their list of pre-approved handsets, and the newer Samsung Galaxy S9 had been released in the intervening period. Although the Samsung Galaxy S9 was therefore not one of the pre-approved devices for any of the three carriers tested, all three providers sold

[109] Staff made multiple passes, conducting drive testing along the same roads at different times, for most drive test routes in order to mitigate false positives arising from the inherent variability of mobile networks. As we found when analyzing the staff drive test data below, there are clear patterns that emerge from analyzing the drive test data indicating insufficient coverage across large areas. Because we would expect that speed tests would fail in a coverage area that meets the cell edge probability only a small percentage of time, lengthy stretches of roadways where speed tests record download speeds below 5 Mbps (especially taken at different times) are unlikely due to any inherent variability.

[110] Locations for the first set of stationary tests, conducted on the Arizona and New Mexico routes, were selected and conducted after conducting drive tests, based upon the signal strength recorded while drive testing. All later stationary test locations were pre-selected based upon areas location near the edge of each providers' coverage and were conducted at various points while drive testing.

[111] We note that the stationary test results for locations in Arizona, which was the first route tested by staff, did not follow the same methodology as for stationary tests conducted on other, later test routes. Specifically, the Arizona tests were conducted for a much shorter duration (for approximately one-to-two minutes) and thus recorded far fewer tests than were conducted at each location for later testing where stationary tests were conducted continuously for between one-to-two hours. Notwithstanding the duration of testing at each location, the Arizona stationary test results are otherwise comparable, and thus have not been excluded from the analysis.

and supported this handset by the time of the staff testing and all three providers approved similar, prior-year Samsung Galaxy models for conducting speed tests during the challenge process.[112] Because the Samsung Galaxy S9 uses a newer chipset with improved peak 4G LTE download speeds (LTE category 18) and supports all of the 4G LTE spectrum bands that were supported by the prior-year models, staff engineers concluded that use of the newer model handset would not meaningfully impact the results.

B. Drive Test Results

59. An analysis of the staff drive test data reveals wide variation across areas in the percentage of tests that were successful, with a "successful" test defined as one that achieved a download speed of at least 5 Mbps (see Table 3 and Table 4) in an area where the provider claimed to offer 4G LTE satisfying the Commission's requirements.

60. Across all three providers tested, no combination of route driven and provider tested (i.e., a route-provider combination, such as Verizon-Alabama) by staff achieved a success rate of 92% across the provider's coverage area, which would be consistent with a download speed of at least 5 Mbps at the cell edge 80% of the time, nor did any route-provider combination even meet the lower 80% success rate associated with the cell edge.[113] The lowest observed success rate recorded by staff drive tests was 45.0% for U.S. Cellular in Vermont, while the highest success rate was 74.6% for Verizon in Montana. The overall success rate of all providers and routes drive tested was 62.3%.[114]

61. This success rate includes tests taken on non-4G LTE (i.e., 2G or 3G) networks. While a non-4G LTE test may indicate that there was no 4G LTE signal in that location, it may also indicate there is a 4G LTE network, but that the handset switched to a 2G or 3G network due to congestion or some other reason. However, tests on 2G or 3G networks account for only about 8% of all tests and excluding them would not materially change the analysis (see Table 5 and Table 6).

62. Finally, we note that the handsets could not obtain any 4G LTE signal for a portion of the staff drive tests conducted in areas where the tested provider claimed to have 4G LTE coverage. For example, handsets could not obtain a 4G LTE signal for 16.2% of tests on Verizon's network, for 21.3% of the tests on T-Mobile's network, and for 38.0% of the tests on U.S. Cellular's network for the routes drive tested.

[112] Specifically, the Samsung Galaxy S8 was pre-approved by both Verizon Wireless and U.S. Cellular, and the similar Samsung Galaxy S8 Active, which includes support for LTE spectrum band 71 (600 MHz band), was approved by T-Mobile. *See Rural Broadband Auctions Task Force Releases List of Handsets to be Used in Mobility Fund Phase II Challenge Process Speed Tests*, Public Notice, 33 FCC Rcd 5324 (WCB/WTB 2018); MF-II Challenge Process Provider Handsets, https://www.fcc.gov/files/mf-ii-challenge-process-provider-handsets (last updated Jun. 11, 2018); Built for the Way We Communicate Today: Samsung Galaxy S9 and S9+ (Feb. 25, 2018), https://news.samsung.com/us/samsung-galaxy-s9-s9plus/ ("AT&T, Sprint, T-Mobile, U.S. Cellular, Verizon Wireless and Xfinity mobile will carry Galaxy S9 and Galaxy S9+ in stores beginning March 16, 2018").

[113] *See MF-II Challenge Process Order*, 32 FCC Rcd at 6300, para. 36 ("Our analysis shows that the 80 percent cell edge probability we adopt corresponds with a 92 percent cell area probability, which means users would have a greater than 90 percent chance of achieving a download speed of at least 5 Mbps across the entire coverage area of a cell.").

[114] We recognize there may be differences in the results between stationary tests and drive tests due to a number of factors, including additional signal loss associated with measurements conducted inside a vehicle and in-motion.

Table 3. Staff Drive Test Results by Provider

Provider Name	Test Count Zero Mbps	Test Count > 0 & < 5 Mbps	Test Count ≥ 5 Mbps	Test Count Total	Percentage ≥ 5 Mbps
Verizon	2,717	3,094	10,487	16,298	64.3%
U.S. Cellular	654	587	1,015	2,256	45.0%
T-Mobile	1,258	986	3,851	6,095	63.2%
Total	**4,629**	**4,667**	**15,353**	**24,649**	**62.3%**

Table 4. Staff Drive Test Results by Route and Provider

Provider Name	Test Route	Date Range	Test Count ≥ 5 Mbps	Test Count Total	Percentage ≥ 5 Mbps
Verizon	Alabama	Mar. 04-07, 2019	2,674	4,671	57.2%
Verizon	Arizona	Nov. 27-29, 2018	322	658	48.9%
Verizon	Montana	Apr. 01-04, 2019	2,009	2,694	74.6%
Verizon	New Mexico	Dec. 03-05, 2018	563	890	63.3%
Verizon	Oklahoma	Jan. 28-31, 2019	3,219	4,389	73.3%
Verizon	Vermont	Mar. 05-08, 2019	1,700	2,996	56.7%
U.S. Cellular	Vermont	Mar. 05-08, 2019	1,015	2,256	45.0%
T-Mobile	Alabama	Mar. 04-07, 2019	3,024	4,500	67.2%
T-Mobile	Montana	Apr. 01-04, 2019	827	1,595	51.8%
		Total	**15,353**	**24,649**	**62.3%**

Table 5. Staff Drive Test Results by Provider (Excluding 2G / 3G Tests)

Provider Name	Test Count Zero Mbps	Test Count > 0 & < 5 Mbps	Test Count ≥ 5 Mbps	Test Count Total	Percentage ≥ 5 Mbps
Verizon	2,120	2,727	10,487	15,334	68.4%
U.S. Cellular	290	315	1,015	1,620	62.7%
T-Mobile	969	870	3,848	5,687	67.7%
Total	**3,379**	**3,912**	**15,350**	**22,641**	**67.8%**

Table 6. Staff Drive Test Results by Route and Provider (Excluding 2G / 3G Tests)

Provider Name	Test Route	Date Range	Test Count ≥ 5 Mbps	Test Count Total	Percentage ≥ 5 Mbps
Verizon	Alabama	Mar. 04-07, 2019	2,674	4,330	61.8%
Verizon	Arizona	Nov. 27-29, 2018	322	618	52.1%
Verizon	Montana	Apr. 01-04, 2019	2,009	2,489	80.7%
Verizon	New Mexico	Dec. 03-05, 2018	563	860	65.5%

Provider Name	Test Route	Date Range	Test Count ≥ 5 Mbps	Test Count Total	Percentage ≥ 5 Mbps
Verizon	Oklahoma	Jan. 28-31, 2019	3,219	4,237	76.0%
Verizon	Vermont	Mar. 05-08, 2019	1,700	2,800	60.7%
U.S. Cellular	Vermont	Mar. 05-08, 2019	1,015	1,620	62.7%
T-Mobile	Alabama	Mar. 04-07, 2019	3,021	4,464	67.7%
T-Mobile	Montana	Apr. 01-04, 2019	827	1,223	67.6%
		Total	**15,350**	**22,641**	**67.8%**

63. The results of staff drive tests reveal significant variance across time and location along the test routes driven, with performance achieving the minimum download speed across some portions of the test route but with substantial sections where download speeds drop below 5 Mbps or where no 4G LTE signal was received. In the following maps, we have visualized the routes driven by Commission staff by calculating for each route-provider combination the average download speed across tests that fell within each one square kilometer grid cell. We have not included the boundaries of each provider's 4G LTE coverage maps submitted as part of the MF-II one-time collection because the Commission previously indicated that it would treat such data as confidential.[115] Instead, we have plotted the staff drive test results on the publicly released 4G LTE coverage maps from Form 477 submitted by each provider from a similar time period (December 2017) in order to aid the visualization.[116] As discussed in Section III, we acknowledge that the Form 477 4G LTE coverage data may not be directly comparable to that provider's MF-II 4G LTE coverage data. Nevertheless, the Form 477 4G LTE coverage maps are still useful to help understand in which areas the provider's propagation model predicts users should expect to receive some baseline 4G LTE service.

[115] *MF-II 4G LTE Data Collection PN*, 32 FCC Rcd at 7028.

[116] *See Mobile Deployment Form 477 Data*, https://www.fcc.gov/mobile-deployment-form-477-data (last updated Sep. 10, 2019, 4:13 PM). The coverage maps in the following figures are based upon the public mobile broadband data from the December 2017 Shapefiles for technology 83 (4G LTE) for the relevant providers.

Figure 4. Staff Drive Test Route for Arizona (Verizon)

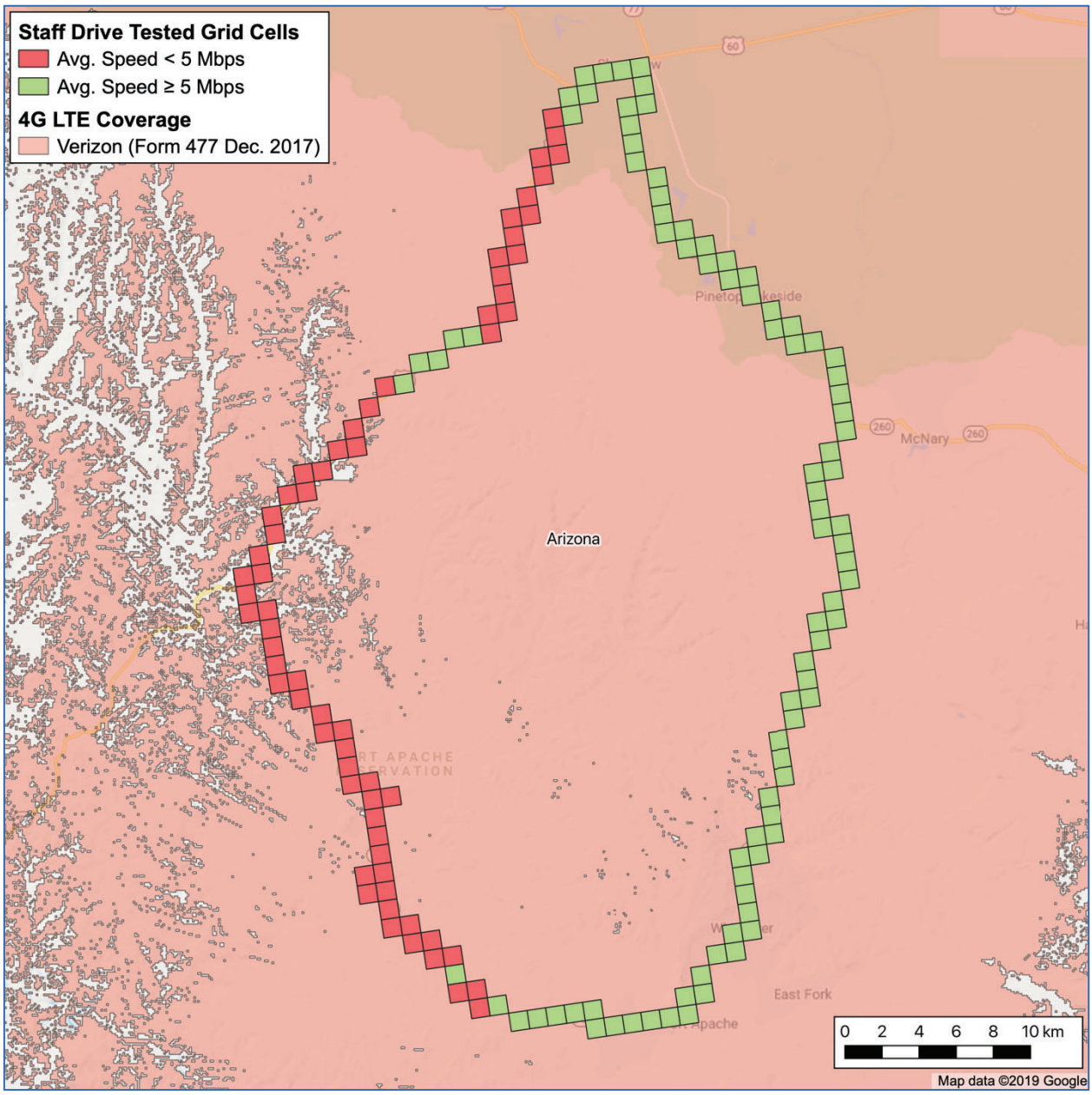


Figure 5. Interstate 40 Portion of Staff Drive Test Route for New Mexico (Verizon)

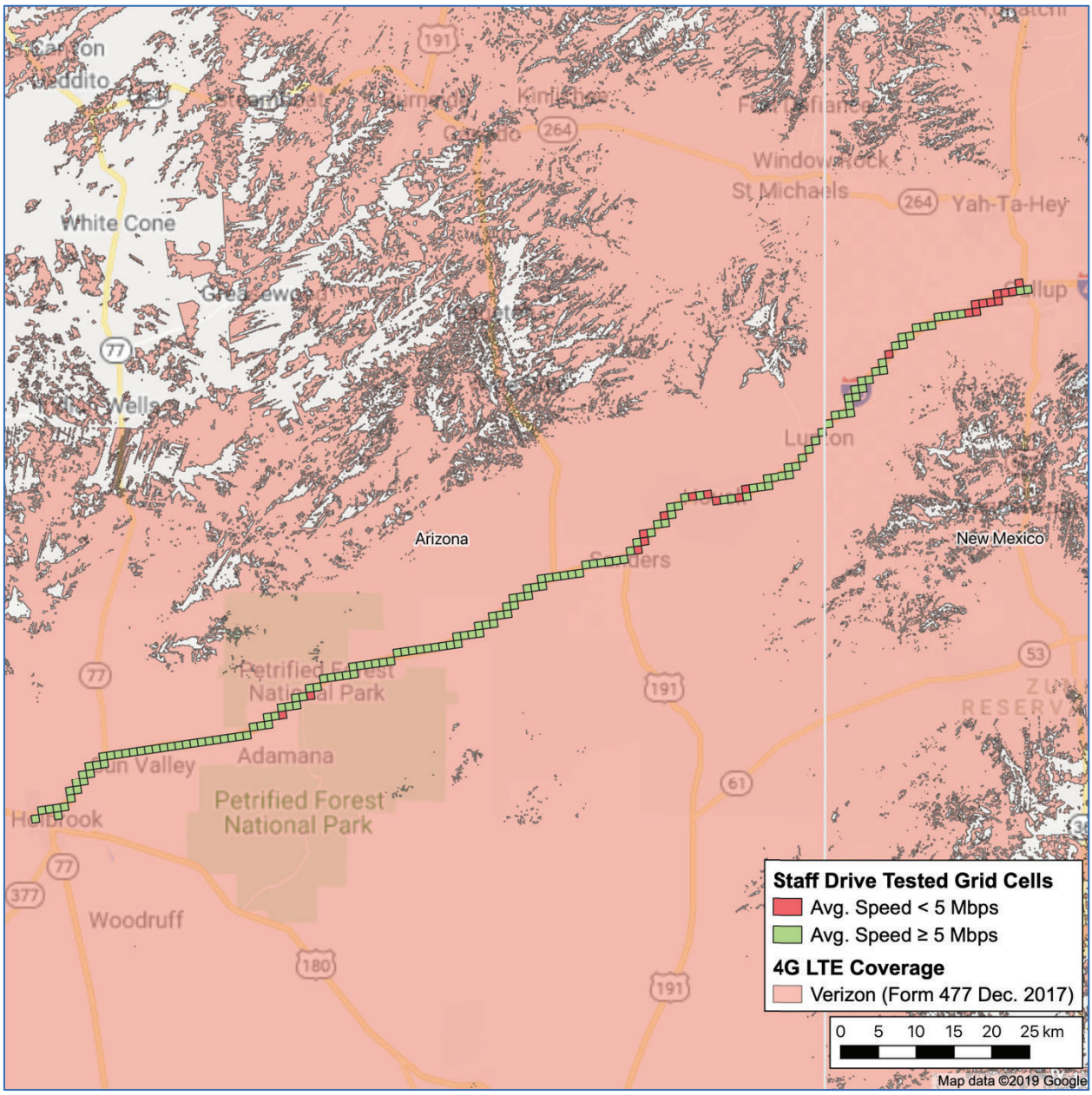


Figure 6. Eastern Portion of Staff Drive Test Route for New Mexico (Verizon)

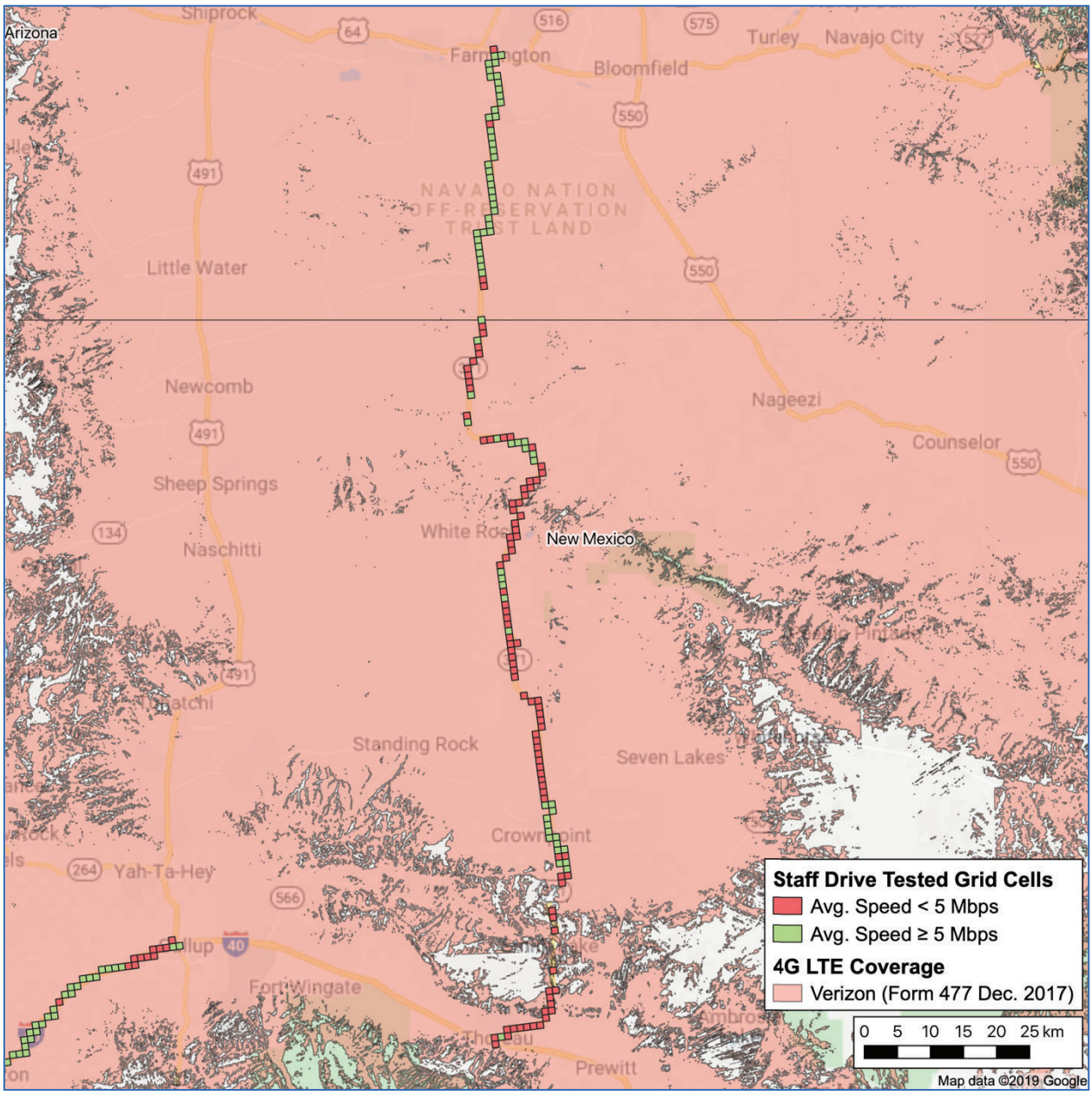


Figure 7. Western Portion of Staff Drive Test Route for Oklahoma (Verizon)

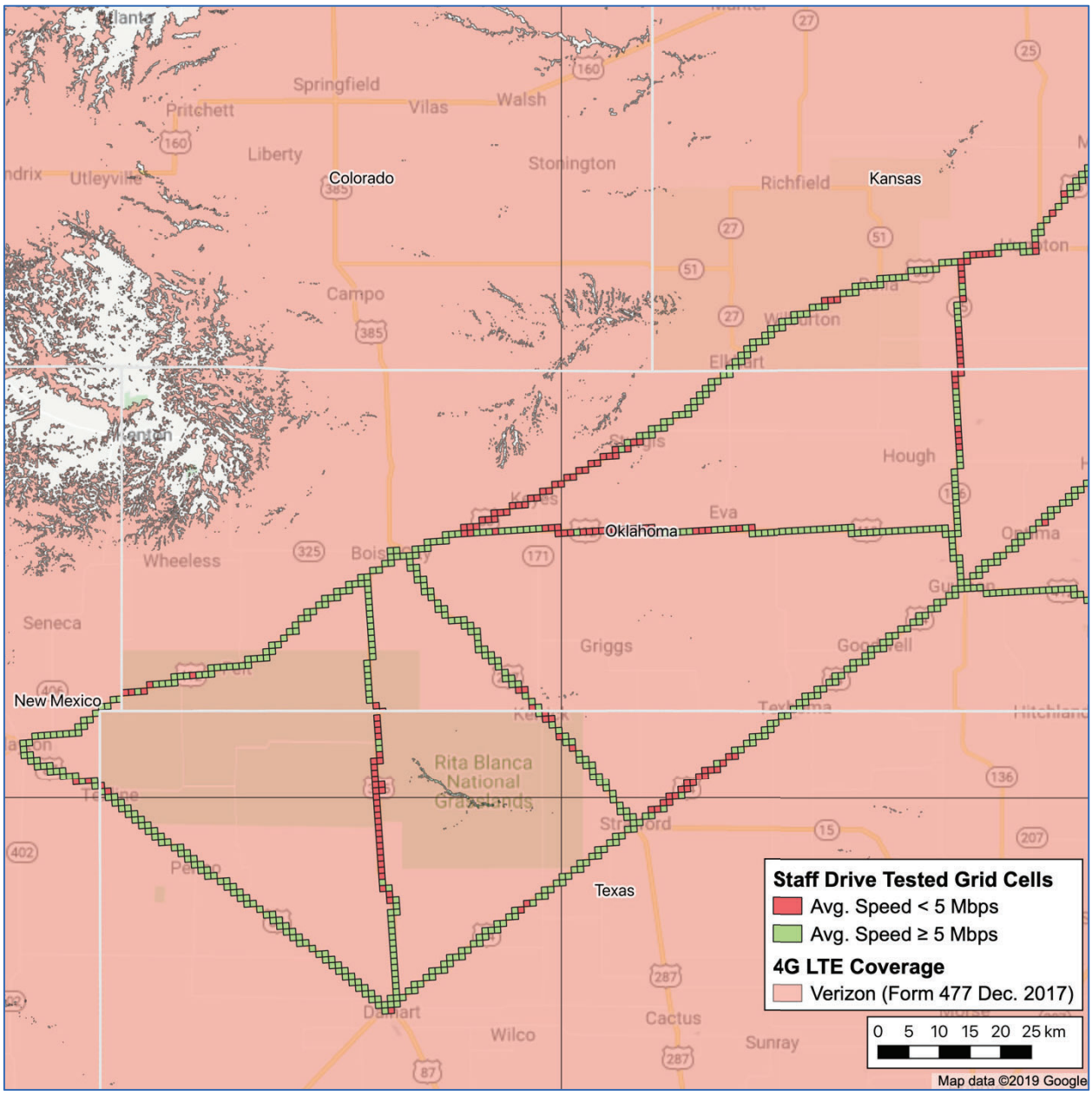


Figure 8. Eastern Portion of Staff Drive Test Route for Oklahoma (Verizon)

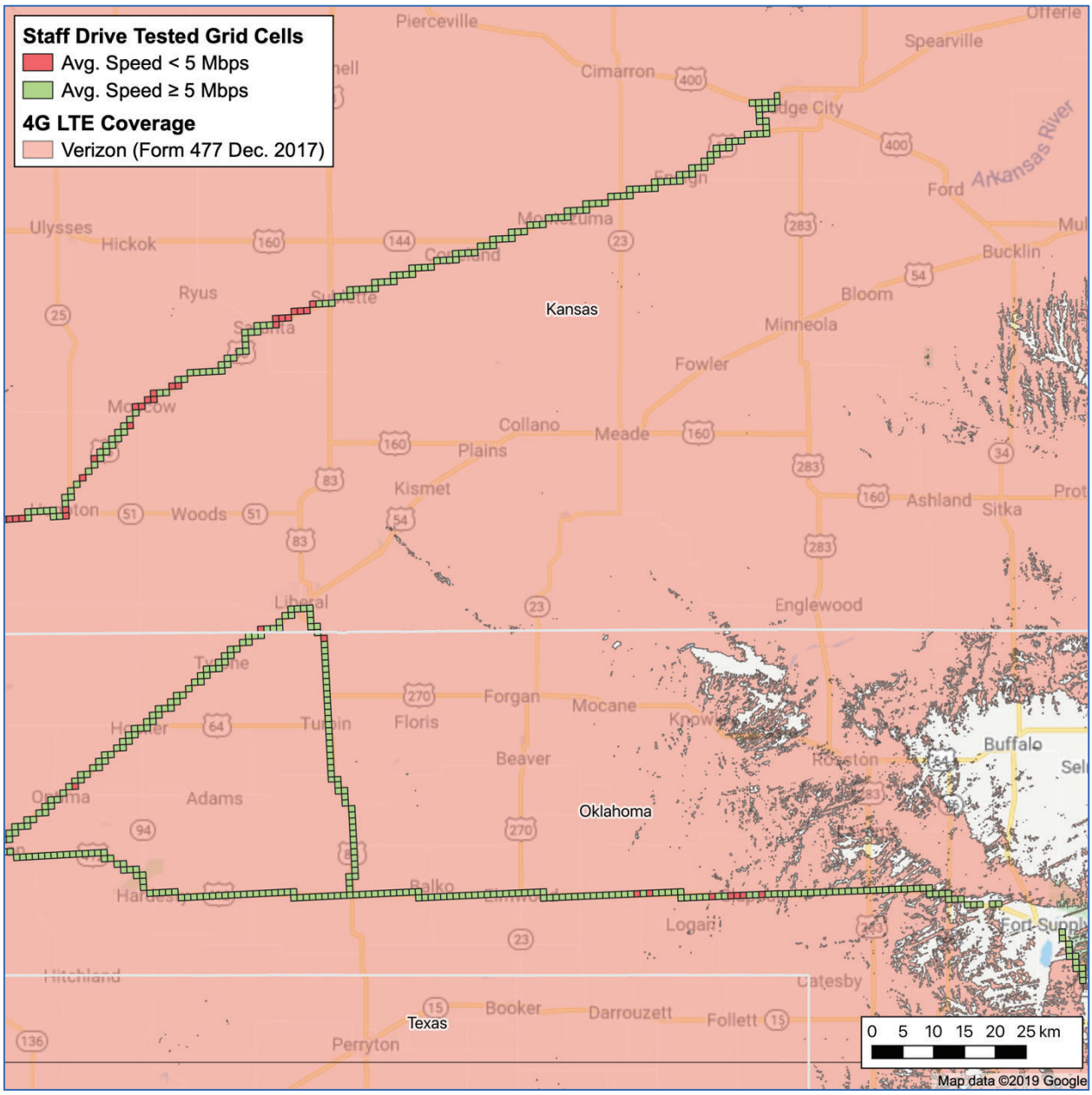


Figure 9. Northern Portion of Staff Drive Test Route for Alabama (Verizon)

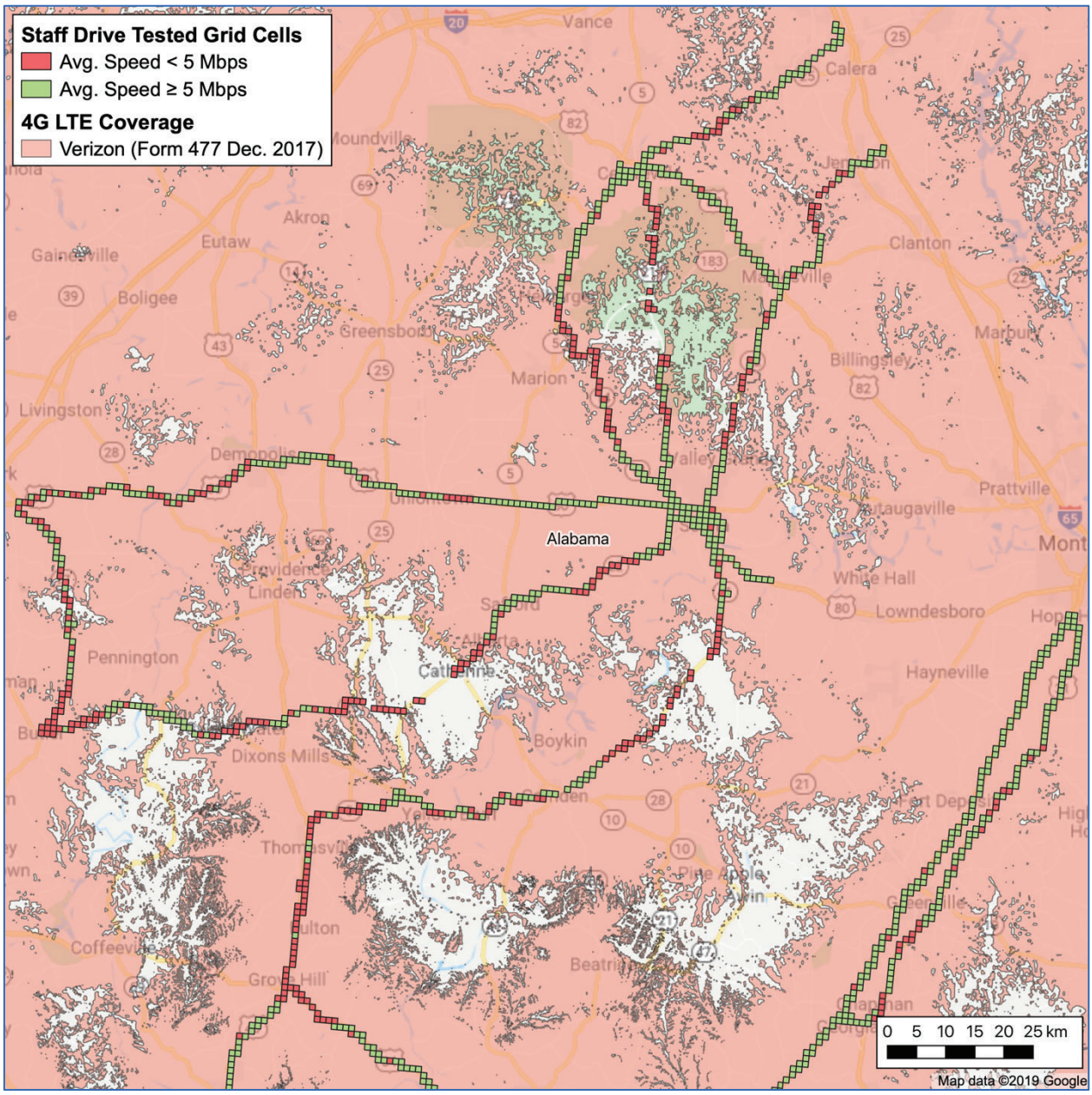


Figure 10. Southern Portion of Staff Drive Test Route for Alabama (Verizon)

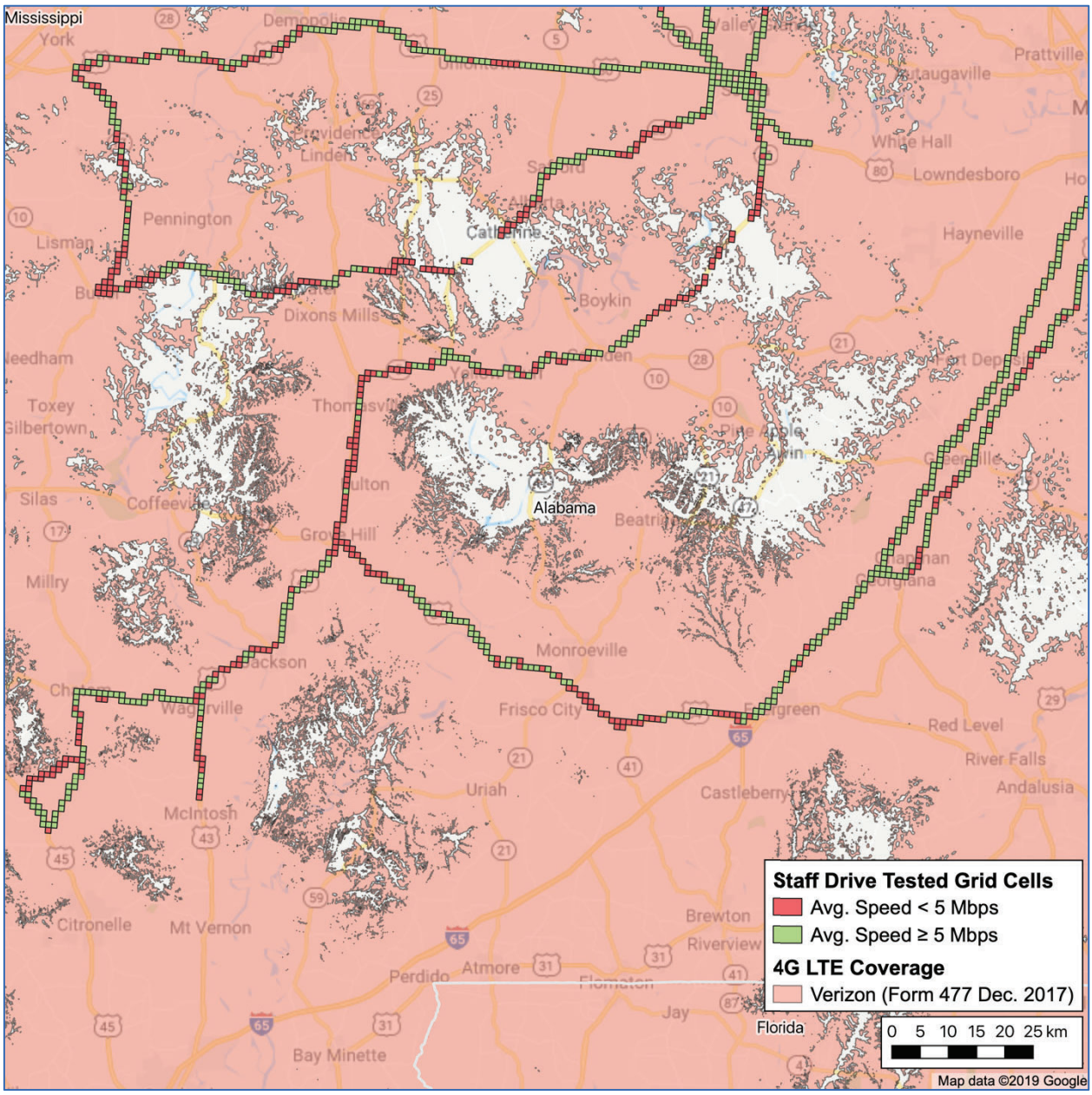


Figure 11. Staff Drive Test Route for Vermont (Verizon)

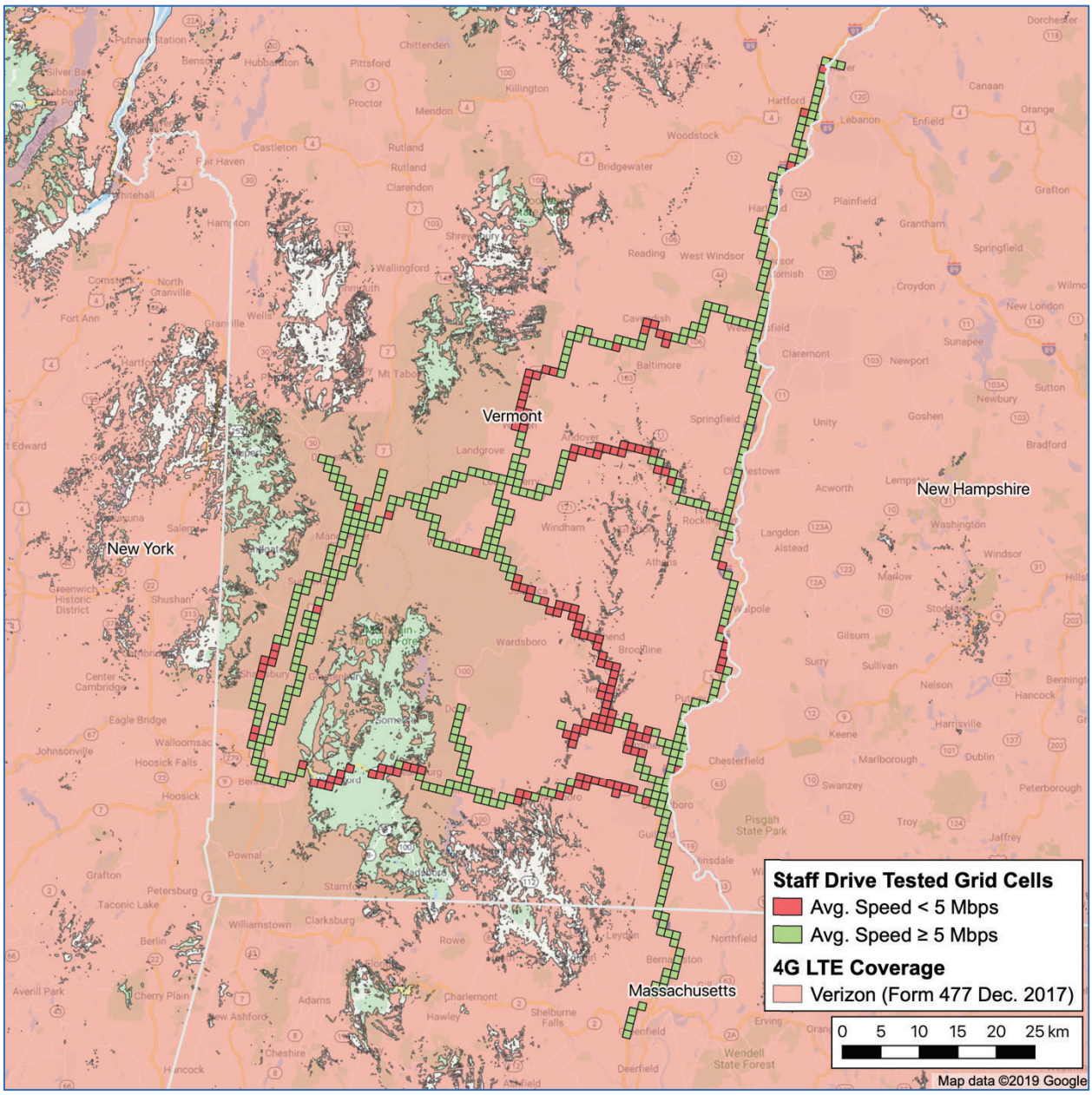


Figure 12. Southwestern Portion of Staff Drive Test Route for Montana (Verizon)

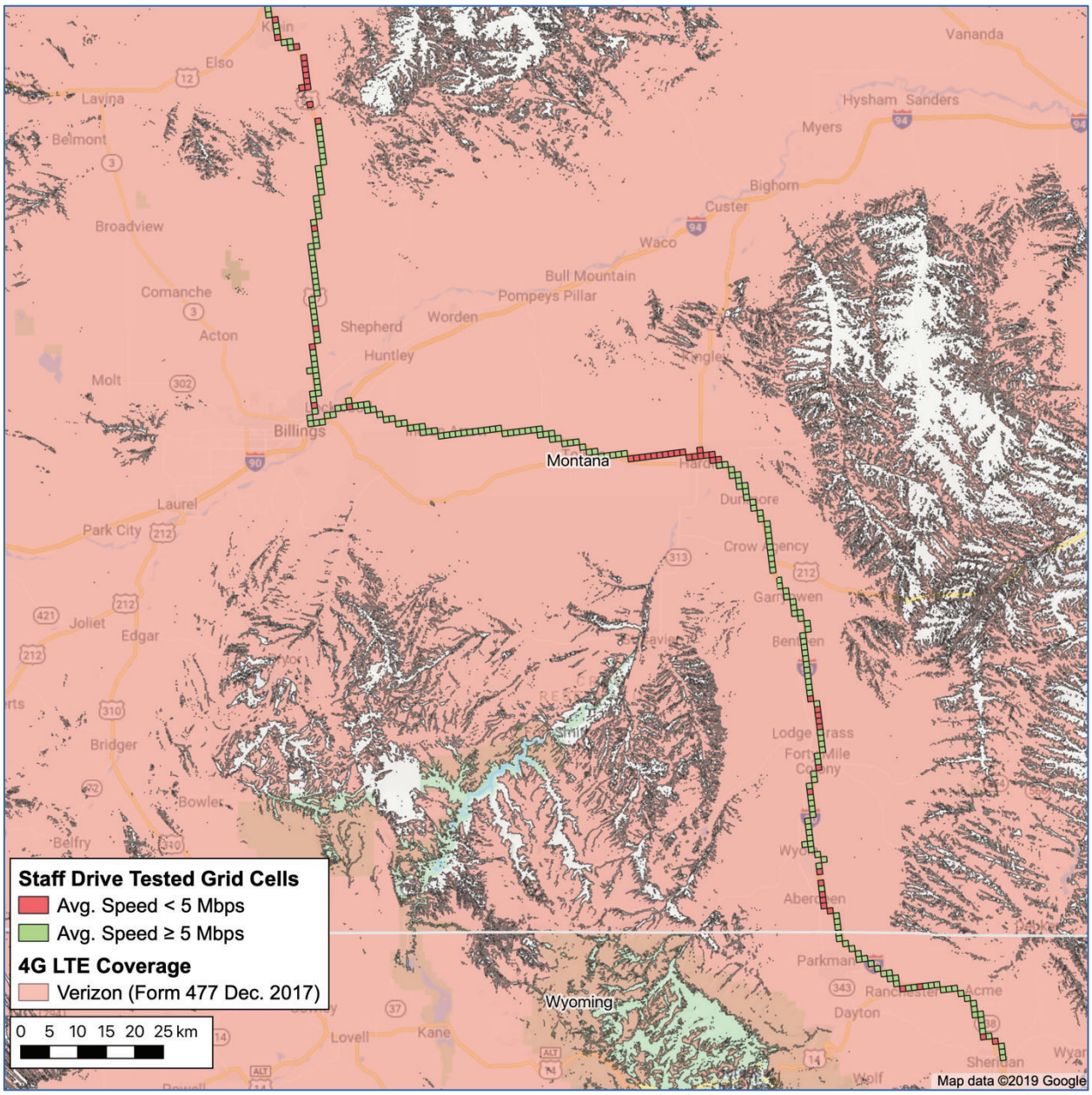


Figure 13. Western Portion of Staff Drive Test Route for Montana (Verizon)

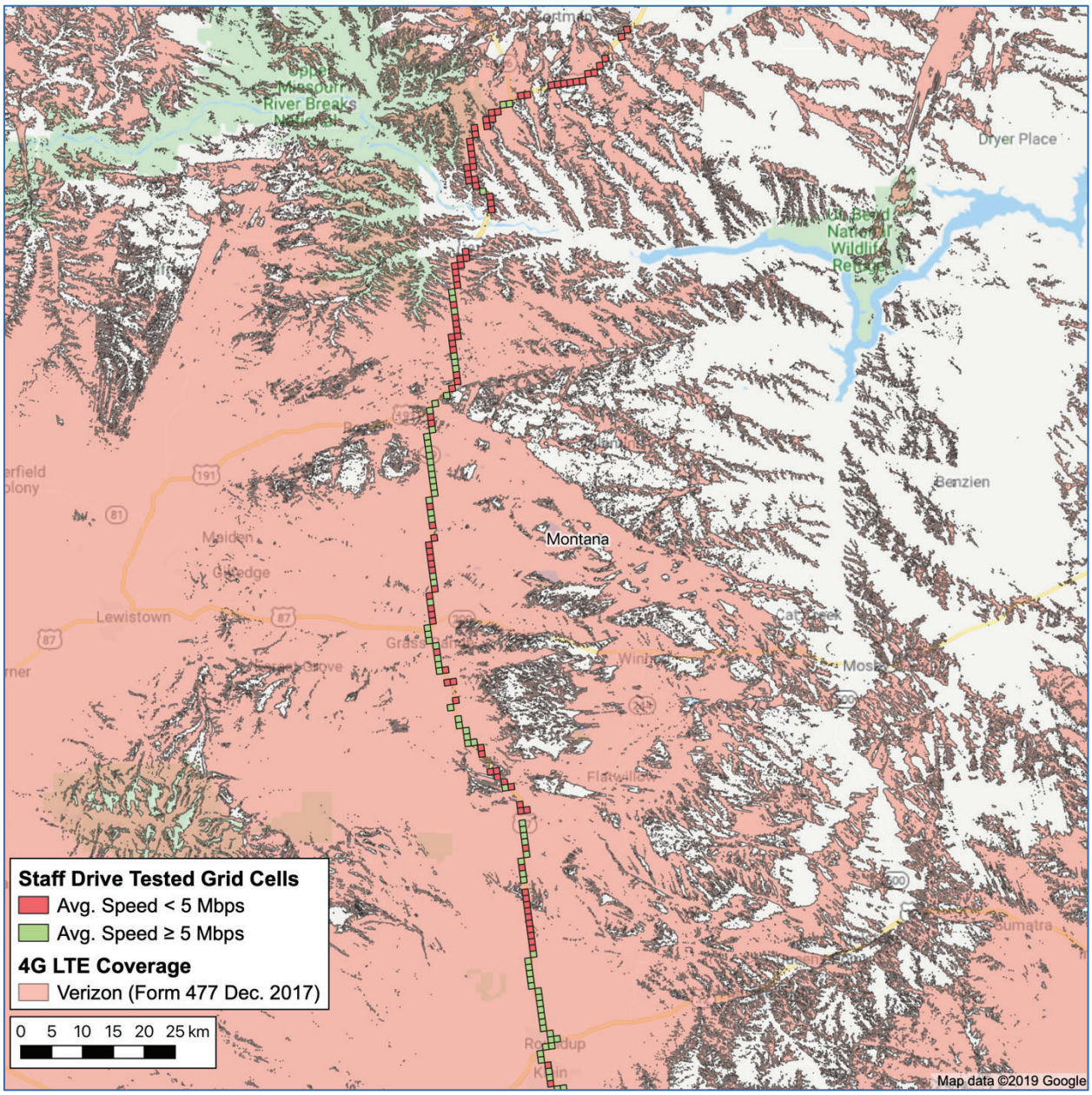


Figure 14. Northwestern Portion of Staff Drive Test Route for Montana (Verizon)

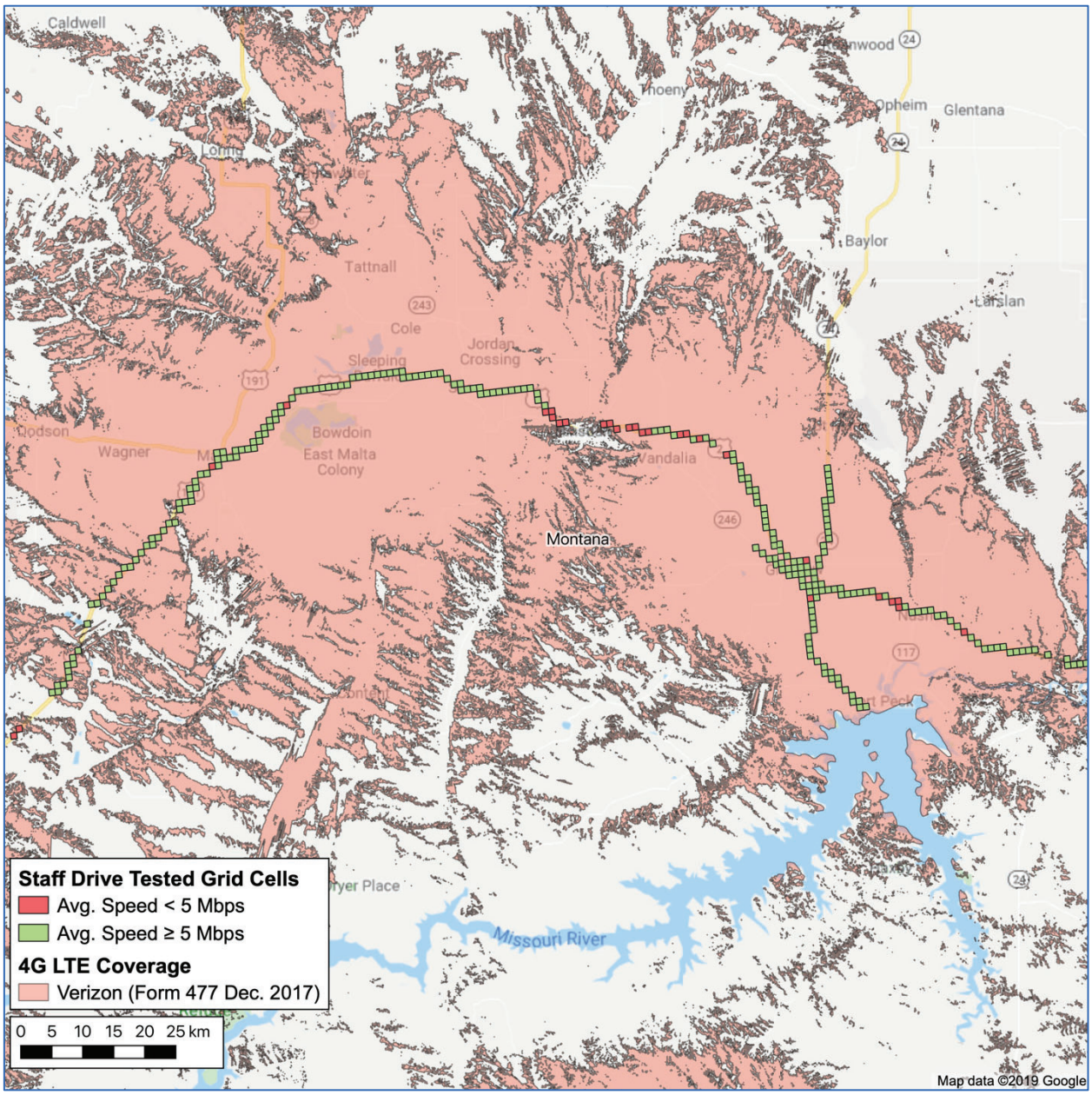


Figure 15. Northeastern Portion of Staff Drive Test Route for Montana (Verizon)

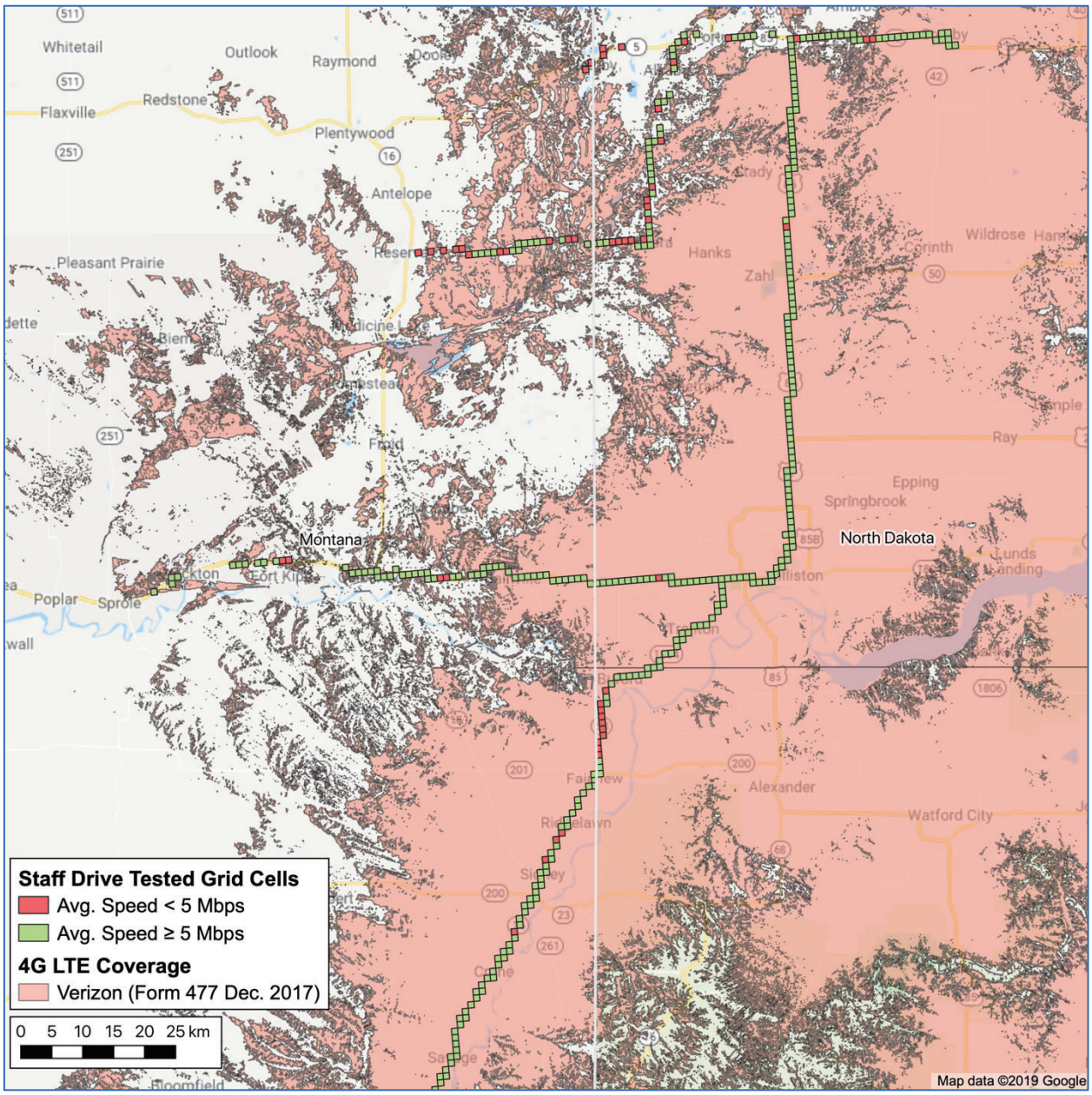


Figure 16. Southeastern Portion of Staff Drive Test Route for Montana (Verizon)

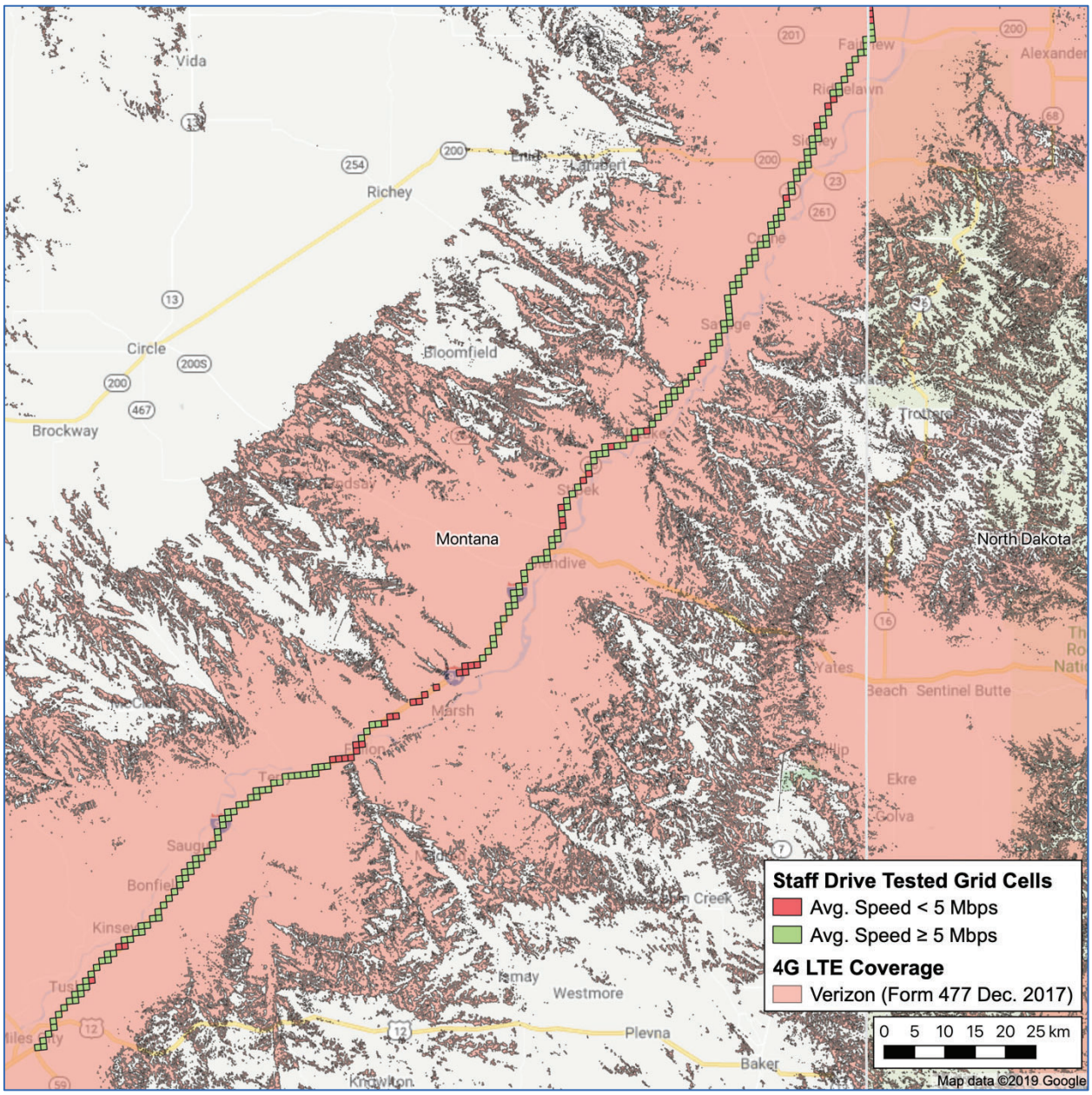


Figure 17. Staff Drive Test Route for Vermont (U.S. Cellular)

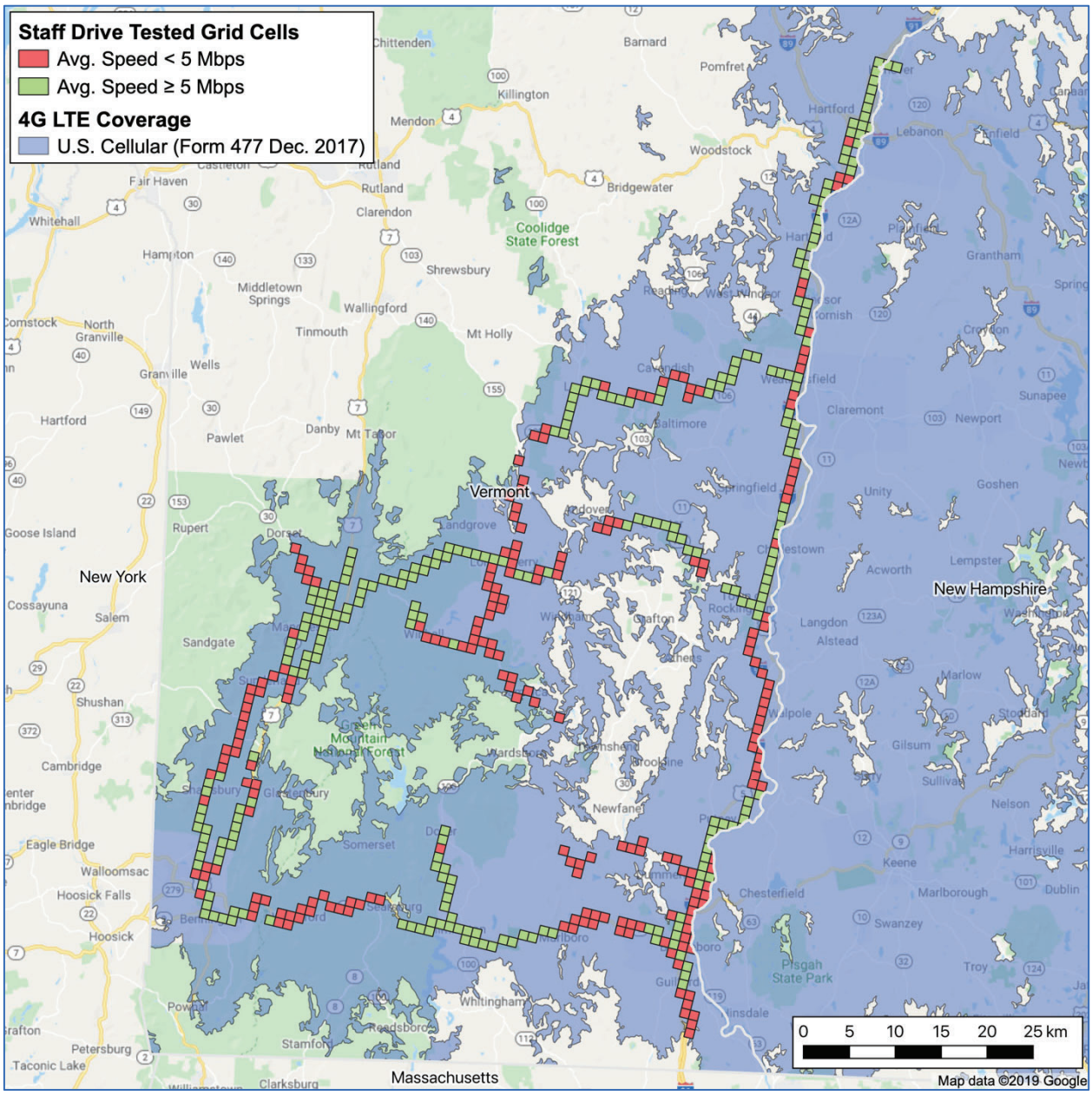


Figure 18. Northern Portion of Staff Drive Test Route for Alabama (T-Mobile)

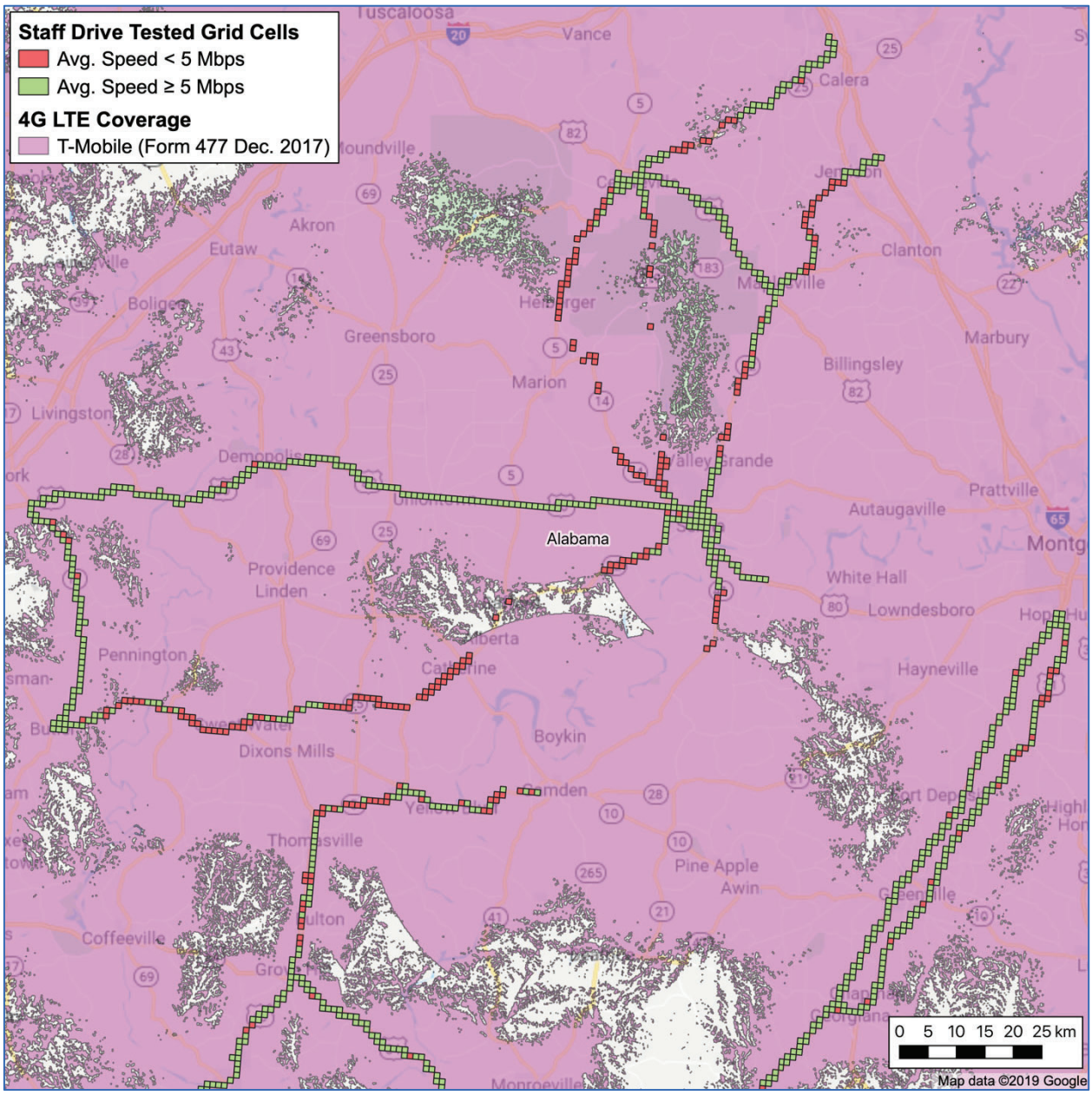


Figure 19. Southern Portion of Staff Drive Test Route for Alabama (T-Mobile)

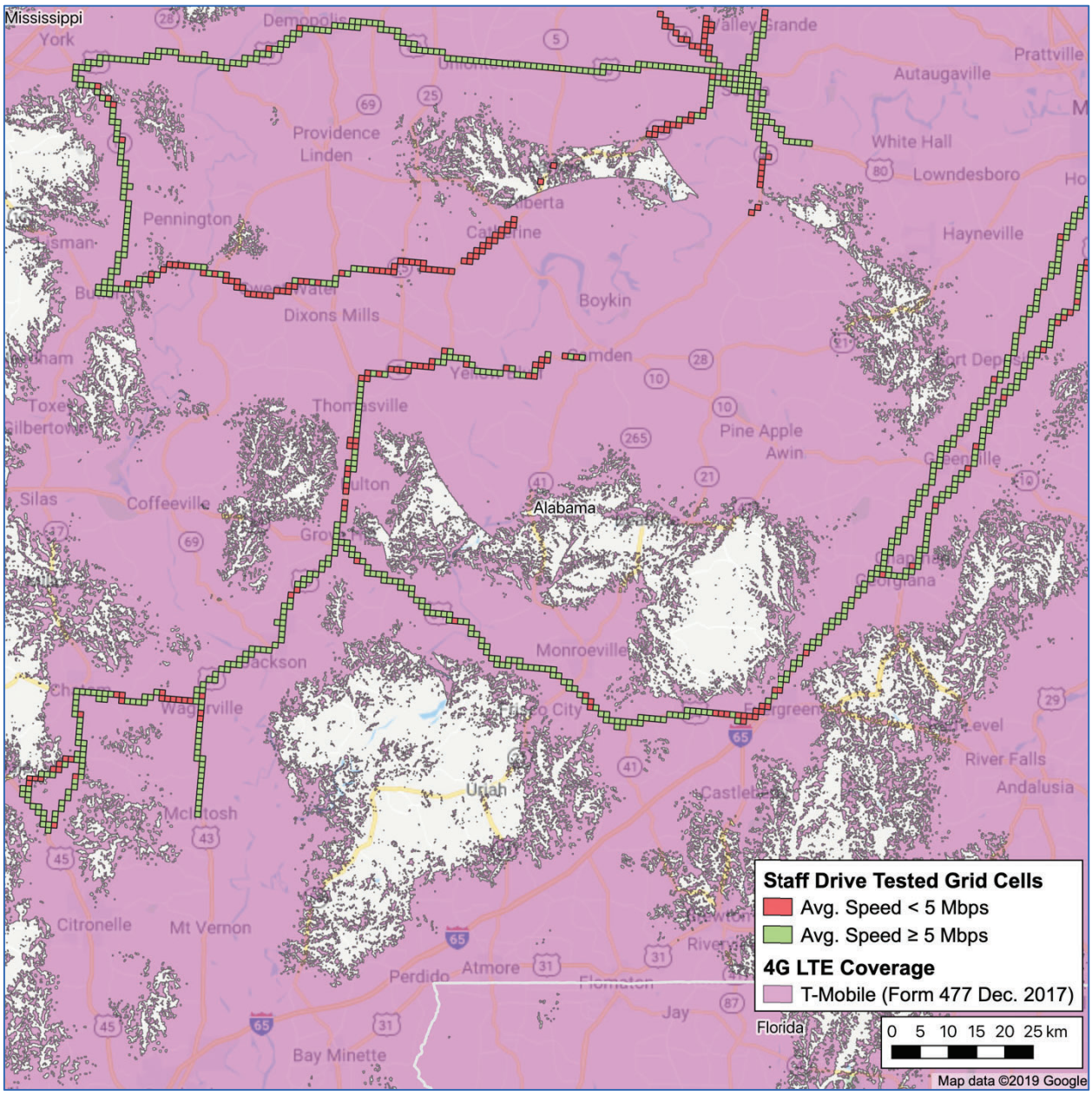


Figure 20. Big Horn and Yellowstone County Portion of Staff Drive Test Route for Montana (T-Mobile)

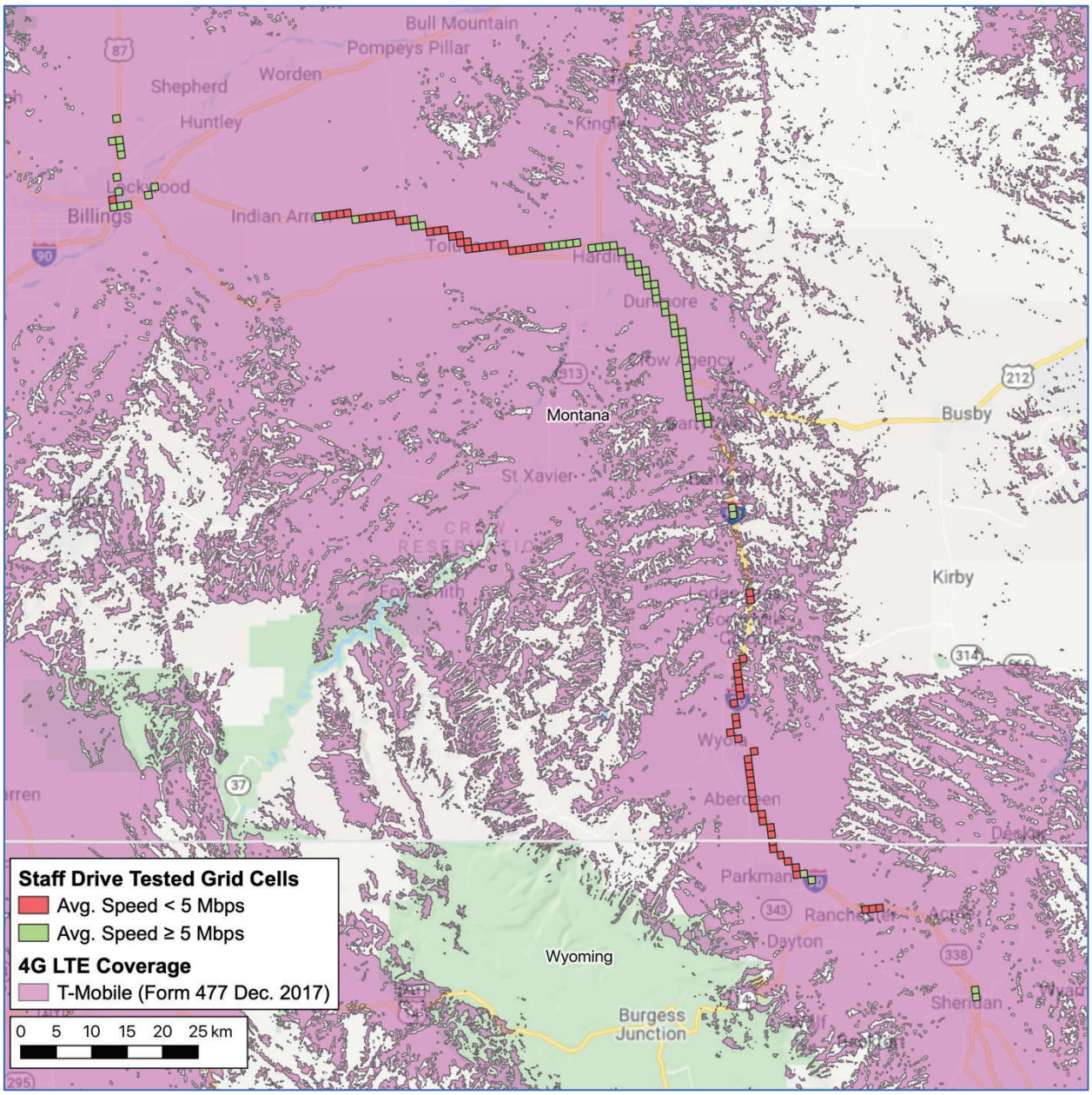


Figure 21. Phillips and Valley County Portion of Staff Drive Test Route for Montana (T-Mobile)

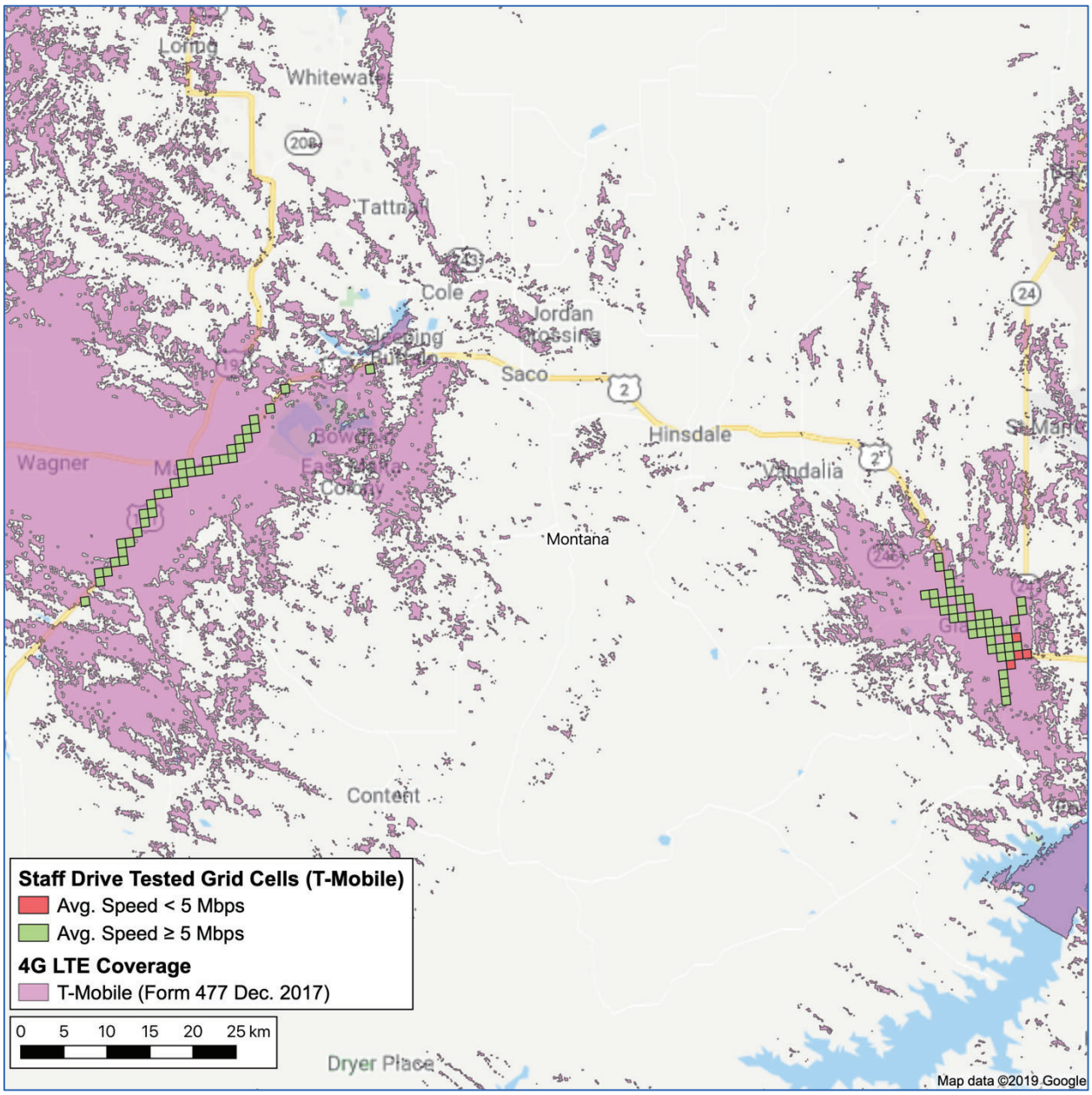


Figure 22. Northeastern Portion of Staff Drive Test Route for Montana (T-Mobile)

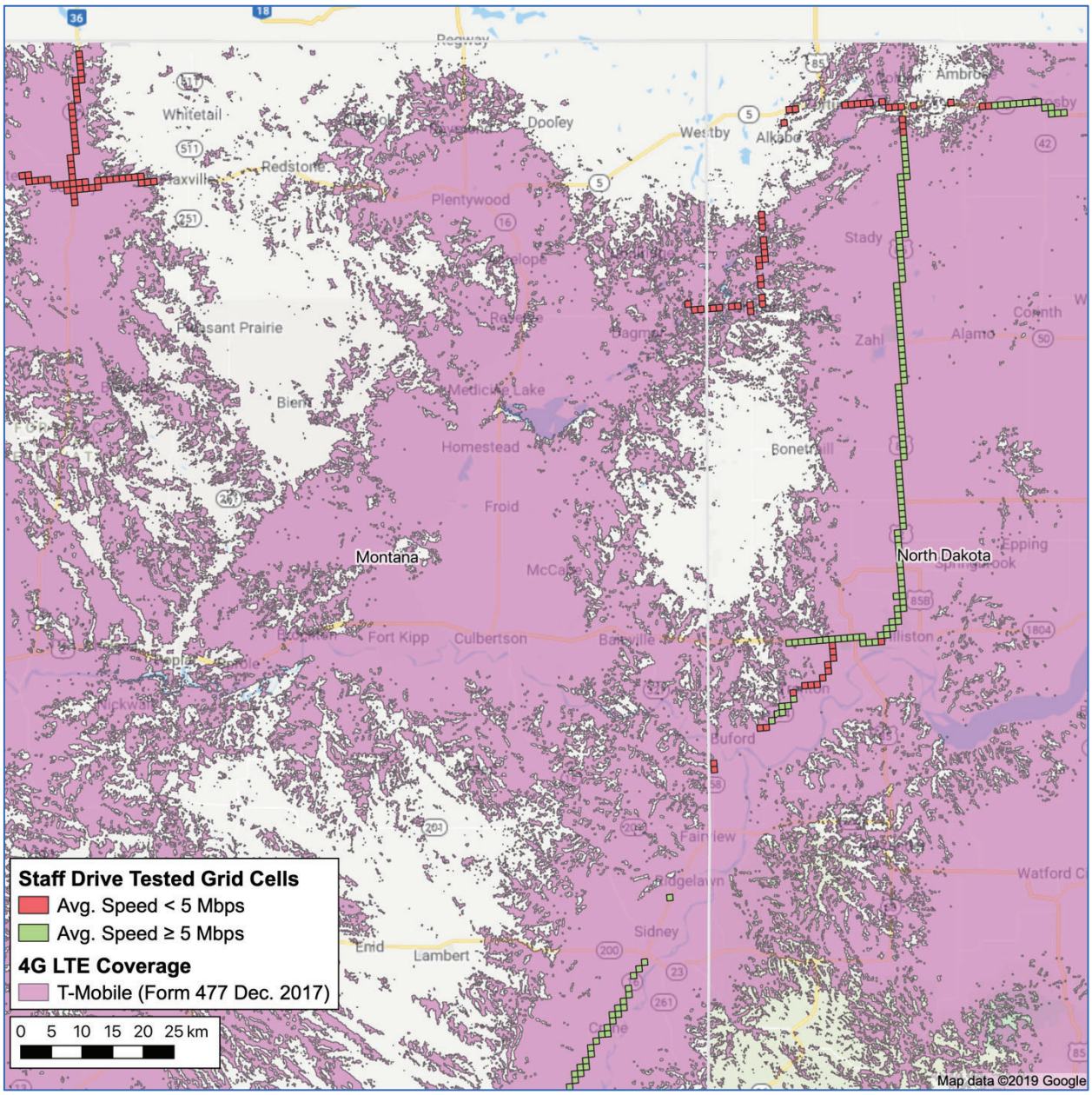
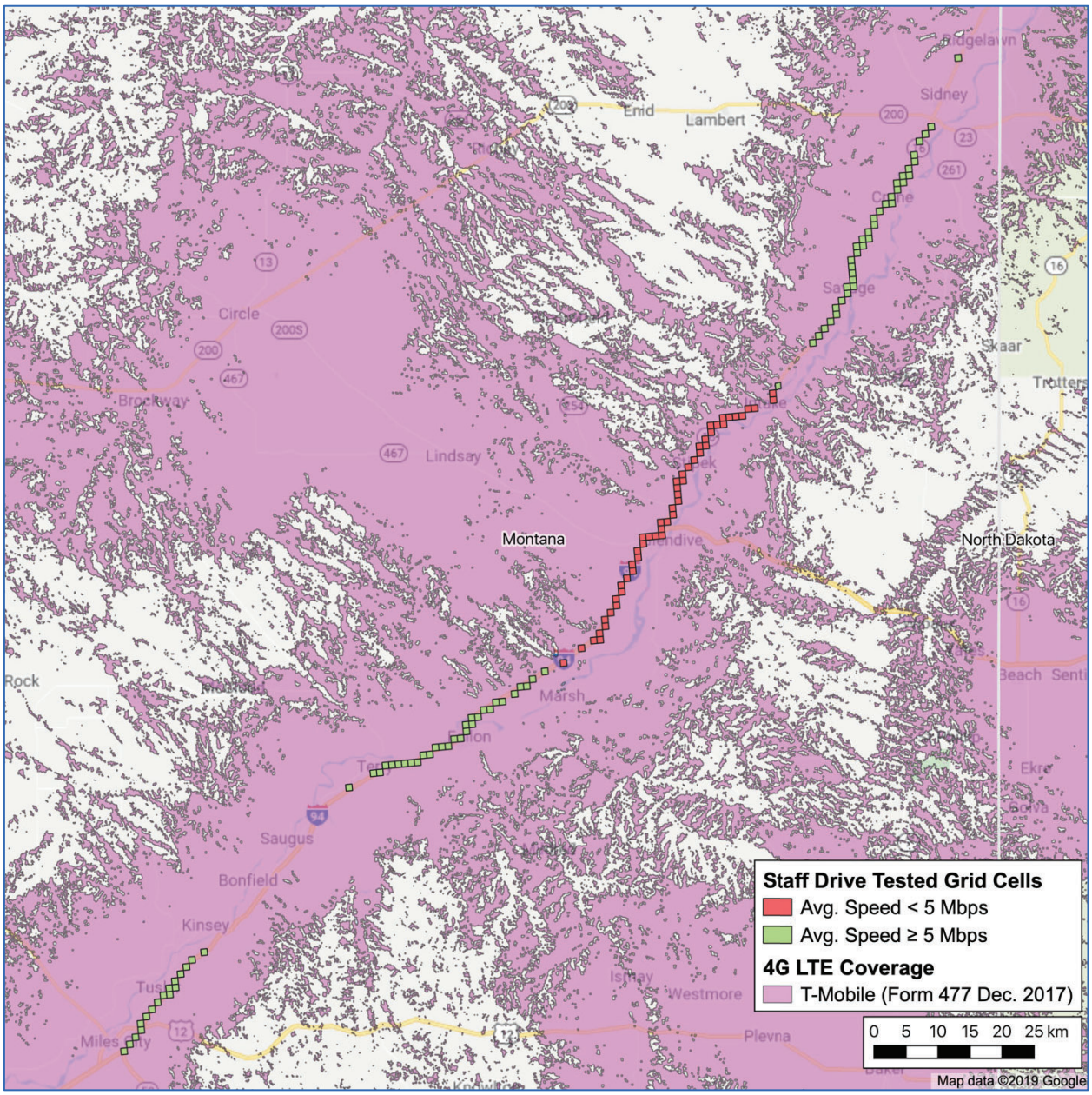


Figure 23. Interstate 94 Portion of Staff Drive Test Route for Montana (T-Mobile)



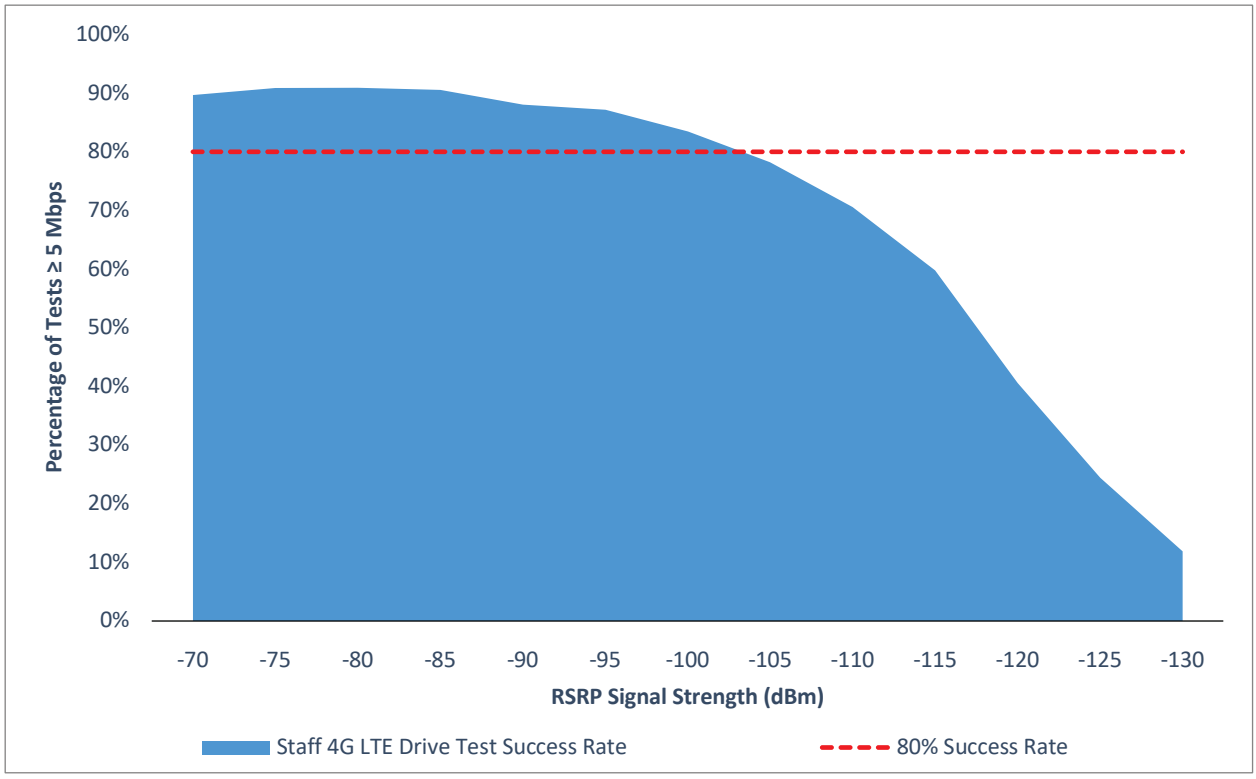
64. *Relationship Between RSRP Signal Strength and Success Rate*.—In addition to download speed, the staff speed tests recorded the RSRP signal strength value in decibel-milliwatts (dBm) received by the handset with each speed test on a 4G LTE network.[117] Among other analyses, we analyzed

[117] The RSRP value recorded by handsets is a standard measurement of signal strength indicative of cell coverage of 4G LTE networks. *See* Stefania Sesia et al., LTE–The UMTS Long Term Evolution: From Theory to Practice § 22.3.1.1, at 513 (Wiley 2nd ed. 2011). RSRP as a metric for signal strength only pertains to 4G LTE networks. Accordingly, for these purposes we excluded tests that did not include a recorded RSRP value, either because the test was conducted on a non-4G LTE network (e.g. 3G) or because the handset was unable to detect a 4G LTE signal.

whether the measurements helped explain the discrepancies found between model-predicted download speeds and on-the-ground tests.

65. We found a strong positive relationship between the RSRP signal strength recorded and the percentage of 4G LTE speed tests that achieved a download speed of at least 5 Mbps (see Figure 24). Across all 4G LTE staff drive tests, when RSRP values were -80 dBm or higher, the observed success rate was at least 90%. An 80% or better success rate was found with RSRP values of -105 dBm or higher. We saw a sharp drop off in success rates at RSRP values below -105 dBm.

Figure 24. Percentage of Successful 4G LTE Staff Drive Tests by RSRP



66. To compare these signal strength observations to the Commission's coverage map standards, we refer to the RSRP signal strength at which an 80% success rate is achieved as the "observed cell edge." While the observed cell edge RSRP was -105 dBm across all staff drive tests that obtained a 4G LTE signal within the coverage area, it varied considerably among the three providers tested. T-Mobile's observed cell edge RSRP was approximately -115 dBm, while Verizon's was approximately -105 dBm and U.S. Cellular's was approximately -100 dBm.

67. The Commission also required each provider to report the minimum cell edge RSRP signal strength values that its propagation model predicts a device would receive for its coverage maps (the "reported cell edge").[118] The reported cell edge RSRP values reported by the three providers were {[ ]} dBm for T-Mobile, {[ ]} dBm for U.S. Cellular, and {[ ]} dBm for Verizon. As a benchmark, we compared the recorded signal strength of staff speed tests to the lowest of these

[118] The MF-II LTE coverage data include an RSRP value that represents the minimum signal strength that each provider used to determine the cell edge in its propagation model. *See How Should I Format My LTE Coverage Data?* (Nov. 28, 2017, 10:04 AM), https://www.fcc.gov/MF2-LTE-Collection (follow "Description & Formatting" hyperlink under "Mobile LTE Coverage Maps").

reported cell edge RSRP values in performing our analysis.[119] We found that the recorded signal strengths were sometimes inconsistent with the provider's filings, recording values below the lowest reported cell edge RSRP of the tested provider. More specifically, we found that {[ ]}, {[ ]}, and {[ ]} of 4G LTE drive tests conducted within the reported coverage areas of T-Mobile, U.S. Cellular, and Verizon, respectively, had an RSRP value below the provider's reported cell edge RSRP value (see Table 7). In cases where the handset recorded signal strength values below the minimum predicted by the provider's propagation model, that suggests that its model may not be properly considering on-the-ground factors such as clutter or terrain.

Table 7. Reported versus Observed Cell Edge by Provider

Provider Name	Percentage Non-4G LTE Tests	Percentage 4G LTE Tests with RSRP Below Reported Cell Edge RSRP	Reported Cell Edge RSRP	Observed Cell Edge RSRP
T-Mobile	21.3%	{[ ]}	{[ ]} dBm	-115 dBm
U.S. Cellular	38.0%	{[ ]}	{[ ]} dBm	-100 dBm
Verizon	16.2%	{[ ]}	{[ ]} dBm	-105 dBm

68. We further compared the observed cell edge RSRP value for each provider with its reported cell edge RSRP and found the reported cell edge values to be lower than the observed cell edge values in some cases. For example, the staff drive test data indicate an observed cell edge RSRP—that is, the RSRP signal strength at which an 80% success rate is achieved—on Verizon's 4G LTE network of approximately -105 dBm, which is higher than Verizon's reported cell edge RSRP value of {[ ]} dBm.

69. In cases where the reported cell edge RSRP is lower than the observed cell edge RSRP for a particular provider, it suggests that the RSRP value used by the provider to determine the cell edge in its propagation model may have been too low to allow for handsets to achieve the required download speed with sufficient probability to meet the MF-II specification. In these cases, prescribing a higher minimum RSRP value may provide a more accurate depiction of actual coverage meeting the Commission's standard for the 4G LTE data collection. We also note that even if the reported cell edge RSRP for one of the three providers were equal to the observed cell edge RSRP, the submitted coverage maps would still not accurately reflect actual network performance due to the large number of tests that did not record a 4G LTE signal and had no RSRP values.

[119] Providers that submitted coverage data for multiple spectrum bands generally reported different RSRP values for different spectrum bands. Because the staff speed test data did not record which spectrum band the handset used for each test or in each location, we compared the test data to the lowest value in the range of RSRP values in cases where the provider reported different RSRP values for different spectrum bands. We also acknowledge that the providers for which staff conducted speed tests may have networks that used carrier aggregation—a technology by which the handset is able to receive and transmit over multiple spectrum bands simultaneously. The staff speed tests recorded only a single RSRP signal strength value associated with each test and did not record which spectrum band or bands were in use at the time of the test. As a result, it is possible that the test handset measured multiple RSRP signal strengths on different bands despite only recording the RSRP signal strength associated with the primary band.

C. Stationary Test Results

70. The results of the stationary tests conducted by Commission staff vary widely based upon the specific location at which the tests were run (see Table 8 and Table 9).[120] Locations were selected based upon the planned drive test route and staff analysis of each provider's 4G LTE coverage maps identifying areas close to the edge of coverage. As a result, we would likewise expect that the percentage of stationary tests at each location that were successful—i.e., recorded a download speed of at least 5 Mbps—would be at least 80%. Additionally, because staff stationary testing recorded numerous tests at the same location over an extended time, the success rate should be more representative of performance at a particular location than a single drive test point.

71. Out of the 42 stationary test locations, nearly half (20) measured a success rate of 80% or better—and, for slightly more than a third (15) of the locations, the 92% benchmark was met—indicating that in at least those areas the provider's coverage map appeared to be accurate. However, the success rates for the remaining locations were generally considerably lower than the 80% benchmark, including eight locations for which no stationary test achieved download speeds of at least 5 Mbps. Such results indicate that the provider's coverage data may not be an accurate representation of the on-the-ground consumer experience in these 22 locations.

Table 8. Staff Stationary Test Results by Route, Location, and Provider

Provider Name	Test Route	Location	Test Count ≥ 5 Mbps	Test Count Total	Percentage ≥ 5 Mbps
T-Mobile	Alabama	Federal Rd., Hope Hull, AL	149	170	87.6%
T-Mobile	Alabama	Four Points Rd., Fruitdale, AL	75	175	42.9%
T-Mobile	Alabama	Rt. 10, Camden, AL	147	170	86.5%
T-Mobile	Alabama	Rt. 16, Sweet Water, AL	164	165	99.4%
T-Mobile	Alabama	Marvel Rd., Brierfield, AL	93	156	59.6%
T-Mobile	Montana	Hwy. 248, Scobey, MT	0	143	0%
T-Mobile	Montana	Scotty Pride Dr., Glasgow, MT	171	172	99.4%
U.S. Cellular	Vermont	Rt. 9, Bennington, VT	80	165	48.5%
U.S. Cellular	Vermont	N. Hartland Rd., White River Junction, VT	142	169	84.0%
U.S. Cellular	Vermont	S. Main St., Chester, VT	169	169	100%
U.S. Cellular	Vermont	Bonnet St., Manchester Center, VT	175	175	100%
U.S. Cellular	Vermont	Putney Rd., Brattleboro, VT	0	164	0%
Verizon	Alabama	Federal Rd., Hope Hull, AL	165	165	100%
Verizon	Alabama	Four Points Rd., Fruitdale, AL	10	146	6.8%
Verizon	Alabama	Rt. 10, Camden, AL	88	154	57.1%
Verizon	Alabama	Rt. 16, Sweet Water, AL	41	155	26.5%

[120] We have again excluded from our analysis any stationary test points that fell outside of the tested provider's coverage maps.

Provider Name	Test Route	Location	Test Count ≥ 5 Mbps	Test Count Total	Percentage ≥ 5 Mbps
Verizon	Alabama	Marvel Rd., Brierfield, AL	167	170	98.2%
Verizon	Arizona[121]	E. Woolford Rd., Show Low, AZ	2	4	50.0%
Verizon	Arizona	S. Penrod Ln., Pinetop-Lakeside, AZ	30	30	100%
Verizon	Arizona	Winners Cir., McNary, AZ	0	5	0%
Verizon	Arizona	Farm Rd., Canyon Day, AZ	9	13	69.2%
Verizon	Arizona	Faught Ridge Rd., Show Low, AZ	0	5	0%
Verizon	Arizona	Rim Rd., Show Low, AZ	0	3	0%
Verizon	Arizona	W. Whipple St., Show Low, AZ	0	4	0%
Verizon	Montana	4th Ave. SE, Crosby, ND	169	169	100%
Verizon	Montana	Scotty Pride Dr., Glasgow, MT	154	162	95.1%
Verizon	New Mexico	Rt. 371, Thoreau, NM	0	221	0%
Verizon	New Mexico	Rt. 371, Crownpoint, NM	147	220	66.8%
Verizon	New Mexico	Rt. 371, Bloomfield, NM	56	221	25.3%
Verizon	New Mexico	W. Main St., Farmington, NM	193	216	89.4%
Verizon	Oklahoma	Rt. 287, Stratford, TX	163	165	98.8%
Verizon	Oklahoma	N0350 Rd., Boise City, OK	162	172	94.2%
Verizon	Oklahoma	Rt. 412, Guymon, OK	167	168	99.4%
Verizon	Oklahoma	Rt. 56, Dodge City, KS	171	171	100%
Verizon	Oklahoma	Rt. 412, Felt, OK	124	167	74.3%
Verizon	Oklahoma	Rt. 54, Tyrone, OK	125	168	74.4%
Verizon	Oklahoma	Rt. 385, Dalhart, TX	106	170	62.4%
Verizon	Vermont	Rt. 9, Bennington, VT	169	169	100%
Verizon	Vermont	N. Hartland Rd., White River Junction, VT	102	168	60.7%
Verizon	Vermont	S. Main St., Chester, VT	0	155	0%
Verizon	Vermont	Bonnet St., Manchester Center, VT	25	26	96.2%
Verizon	Vermont	Putney Rd., Brattleboro, VT	143	161	88.8%
		Total	**4,053**	**5,916**	**68.5%**

[121] We note that stationary tests for locations in Arizona did not follow the same methodology as for stationary tests along subsequent test routes. Specifically, see *supra* note 111, stationary tests in Arizona were conducted for a duration of one-to-two minutes compared to one-to-two hours for later stationary tests. Staff thus recorded far fewer tests for stationary test locations in Arizona.

Table 9. Staff Stationary Test Results by Route and Provider

Provider Name	Test Route	Test Count Zero Mbps	Test Count > 0 & < 5 Mbps	Test Count ≥ 5 Mbps	Test Count Total	Percentage ≥ 5 Mbps
T-Mobile	Alabama	5	203	628	836	75.1%
T-Mobile	Montana	4	140	171	315	54.3%
US Cellular	Vermont	96	180	566	842	67.2%
Verizon	Arizona	12	11	41	64	64.1%
Verizon	New Mexico	1	481	396	878	45.1%
Verizon	Oklahoma	1	162	1,018	1,181	86.2%
Verizon	Alabama	4	315	471	790	59.6%
Verizon	Vermont	41	199	439	679	64.7%
Verizon	Montana	0	8	323	331	97.6%
Total		**164**	**1,699**	**4,053**	**5,916**	**68.5%**

72. The staff stationary testing results additionally underscore some of the temporal variability of mobile networks that complicates attempts to accurately measure performance. Even at locations where stationary tests met or exceeded the threshold success rate of 80%, a small percentage of tests nevertheless failed. For example, despite an overall success rate of 89.4% on Verizon's network at the Farmington, NM stationary test location, 21 speed tests recorded download speeds below 5 Mbps. As such, due to the inherent variability of mobile networks, we would expect that drive tests would similarly fail periodically to achieve download speeds of at least 5 Mbps even for areas that meet the 80% cell edge probability. While this implies that the results of any particular speed test are not dispositive for a specific location, the likelihood of false positives decreases with additional measurements, and a more accurate measurement of performance emerges.[122] The numerous stationary test locations that fall within the provider's 4G LTE coverage maps where staff recorded success rates well below 80%, which appear consistent with the results from nearby staff drive tests, bolsters our conclusion that the coverage maps do not accurately represent the areas where consumers can expect to receive 4G LTE download speeds of at least 5 Mbps.

[122] For the same reason, staff therefore made multiple passes, conducting drive testing along the same roads at different times, for most drive test routes. Moreover, there are clear patterns that emerge from analyzing the drive test data indicating insufficient coverage across large areas. Because we would expect that speed tests would fail in a coverage area that meets the cell edge probability only a small percentage of time, lengthy stretches of roadways where speed tests record download speeds below 5 Mbps (especially taken at different times) are unlikely due to any inherent variability.

VI. CONCLUSIONS

73. Accurate broadband data is essential to bridging the digital divide, and bridging the digital divide is the Commission's top priority. Mobile providers are legally responsible for submitting accurate and reliable coverage maps to the Commission. It is incumbent upon mobile providers to accurately model their networks, to test and retest these models, and to improve continually the accuracy of their projections so that their submissions can be confidently relied upon by the Commission, USAC, and the public.[123]

74. Our analysis and speed tests suggest that the submitted MF-II coverage maps did not match actual coverage in many instances. Accordingly, the Commission has sought comment in another proceeding on how it can improve the reliability of the data submitted by mobile service providers.[124] This staff report documents the extensive efforts of staff to investigate the coverage maps submitted by providers for the MF-II data collection and, in doing so, to provide insights into potential ways the Commission can improve the accuracy of mobile coverage going forward.

75. Specifically, staff recommends that the Commission terminate the MF-II challenge process. Despite the extensive efforts of staff and challengers that contributed to the challenge process, the submitted coverage maps are not a sufficiently accurate basis upon which to continue a process meant to address coverage disputes at the margins. The challenge process was not designed to correct generally overstated coverage maps.

76. Staff recommends that the Commission issue an Enforcement Advisory on broadband data accuracy in the Form 477 filing, and, separately, for future Digital Opportunity Data Collection filings. Broadband data accuracy should be made a top priority going forward and providers should be put on notice of the penalties that could arise from coverage filings that violate federal law.

77. Staff recommends that the Commission assemble a team with the requisite expertise, resources, and capacity to audit, verify, and investigate the accuracy of mobile broadband coverage maps submitted to the Commission. The Commission should further consider seeking appropriations from Congress to carry out any necessary drive testing. This team should specifically analyze the most recent Form 477 filings of Verizon, U.S. Cellular, and T-Mobile to determine if they complied with the Form 477 requirements. The Form 477 rules prohibit providers from reporting coverage where they provide none.

78. Additionally, staff recommends that the Commission adopt several changes in its mobile data collections. For MF-II, the Commission adopted the most granular and standardized mobile coverage collection it had ever undertaken. The staff analysis in this report, and the staff and challenger speed tests upon which the analysis relies, are an unprecedented examination into how accurately the coverage maps submitted by mobile providers to the Commission reflect on-the-ground, consumer experiences. This analysis indicates that the coverage data submitted by several providers did not accurately reflect actual on-the-ground coverage in many cases, and thus indicates that our mobile data coverage collections should become more standardized, more detailed, and include actual speed test data. Providers should submit more than just projections of coverage; providers should be required to submit actual speed test data sampling that verifies the accuracy of their propagation models. The Commission should adopt policies, procedures, and standards that allow for submission, verification, and disclosure of

[123] The Commission requires truthful and accurate statements in its proceedings. *See, e.g.*, 47 CFR § 1.17(a)(1).

[124] *See, e.g.*, *Establishing the Digital Opportunity Data Collection; Modernizing the FCC Form 477 Data Program*, Report and Order and Second Further Notice of Proposed Rulemaking, 34 FCC Rcd 7505, 7549-52, paras. 112-20 (2019) (proposing to require mobile service providers to submit "infrastructure information sufficient to allow for verification of the accuracy of providers' broadband data" upon request).

mobile coverage data and also convene a workshop of stakeholders on best practices for the generation and submission of accurate mobile broadband data.

79. Staff is unable to determine the specific reasons for every difference between providers' model-predicted and on-the-ground coverage. Our speed testing, data analyses, and inquiries, however, suggest that some of these differences may be the result of some providers' models: (1) using a cell edge RSRP value that was too low, (2) not adequately accounting for network infrastructure constraints, including backhaul type and capacity, or (3) not adequately modeling certain on-the-ground factors—such as the local clutter, terrain, and propagation characteristics by spectrum band for the areas claimed to be covered.

80. For proceedings in which the Commission collects mobile broadband deployment data, staff recommends that the Commission standardize the propagation map parameters and assumptions that providers use to generate their coverage data. The propagation map parameters adopted in the *MF-II Challenge Process Order*, as well as the coverage and other data required by that Order, should serve as the starting point, but key elements could be further standardized to determine more accurately where consumers can expect to obtain a mobile broadband connection.[125] Based on what we have learned from this process, in the future the Commission should be able to obtain more accurate mobile coverage data by specifying additional technical parameters. Specifically, the Commission should adopt mobile broadband coverage data specifications that include, among other things, minimum throughput and/or signal strength (as appropriate), standard cell loading factors and cell edge probabilities, maximum terrain and clutter bin sizes, and standard fading statistics. For any modeling with minimum throughput parameters, the Commission should require that providers assume the minimum values for whatever additional propagation model parameters would be necessary in order to accurately determine the area where a handset is demonstrated to achieve performance with download and upload speeds no less than the requirement meeting the cell edge probability. The Commission should allow for refinements of propagation models based on experience in any given area but should not allow elimination of elements such as clutter and fading that play a major role in the likelihood of connectivity. Additionally, all data submissions should require an engineering certification.[126]

81. The Commission should collect additional, more detailed data from mobile providers on the inputs and assumptions that underlie their propagation models, including the locations and specific characteristics of certain cell sites used for mobile wireless service, the modeling software that is being used, the entire link budget and values, and terrain data source.[127] To ensure the integrity and reliability of submitted maps, the Commission should also require that all filers submit sufficient actual speed test data sampling that verifies the accuracy of the propagation model used to generate the coverage maps. Actual speed test data is critical to validating the models used to generate the maps.

82. Although a challenge process may seem capable of correcting inaccurate coverage maps, we caution that, as with coverage projections based on propagation models, there are inherent limits to

[125] Standardization should be implemented as appropriate for the purposes of the coverage data collection, taking into account relevant variations, for example in terrain.

[126] We understand that mobile providers closely monitor the performance of their networks including data that can provide insight as to whether service is actually available in an area. We note that the tests conducted for this project found there was no connectivity at all in many areas. We expect that providers should be aware of this from monitoring their networks or their own field tests.

[127] The Commission should adopt procedures for providers that use modeling programs that rely upon proprietary information, e.g., clutter loss values, that would allow for such providers to disclose information necessary to validate their model assumptions. The Commission should consider requiring submission of traffic models to validate the relevant assumptions.

how accurately individual speed tests reflect network performance because performance on mobile broadband networks is inherently variable. Managing a granular challenge process is highly time- and resource intensive and may not significantly improve the accuracy of the underlying maps. Accordingly, staff does not recommend adoption of granular mobile challenge processes as a means of improving the accuracy of mobile coverage maps. This recommendation is separate and aside from creating processes for stakeholders to provide the Commission with evidence that challenges the mapping and modeling assumptions of mobile providers, thus enabling the Commission to respond to evidence of generalized problems with submitted coverage maps, and thus increasing the legitimacy of a final assessment of coverage. While adoption of these staff recommendations should lead to improvements in the Commission's data collection processes, enforcement of data collection rules, and the accuracy of submitted data, mobile providers are ultimately responsible for the accuracy of the coverage data they file.

APPENDIX A:

Form 477 Filers that Submitted MF-II 4G LTE Coverage Data

MF-II Provider Name
Appalachian Wireless
ATN
AT&T
Bluegrass Cellular
Bluesky
C Spire
Carolina West Wireless
Cellcom
Central Texas Telephone Coop (CTTC)
Chariton Valley
Chat Mobility
Choice Phone
ClearTalk
Custer Telephone Cooperative
DoCoMo Pacific
FTC Wireless
GTA Wireless
Horizon Communications
Illinois Valley Cellular
Indigo Wireless
Inland Cellular
Iowa Wireless
James Valley Cooperative Telephone
MBO Wireless

MF-II Provider Name
MCG PCS
Mid-Rivers Cellular
Nex-Tech Wireless
Northwest Missouri Cellular
Panhandle Telephone
Pine Cellular
Pioneer Enid Cellular
PTI Pacifica
Sagebrush Cellular
Smith Bagley (d/b/a Cellular One)
Sprint
SRT Communications
Standing Rock Telecom
Strata Networks
Thumb Cellular
T-Mobile
Triangle
Union Telephone
United Telcom
US Cellular
Verizon Wireless
Viaero Wireless
VTel Wireless
Worldcall

APPENDIX B:

Additional Findings from the MF-II Challenger Data

1 Analysis of the MF-II Challenger Speed Test Data

1. The staff conducted an in-depth analysis of the MF-II challenger speed test data that passed the automated system validations, were certified by the close of the challenge window, and were recorded within the tested provider's coverage area.

2. This in-depth analysis reveals significant variance in the data among challengers and even among handsets used by the same challenger, as well as anomalous and problematic data that nevertheless passed automated system validations and were certified.[1] Examples of such anomalous and problematic data, all of which were certified and within-coverage, include: tests that recorded negative download speeds or positive signal strength values (171 tests); tests for a single challenger that were identified as being on different device models but which used the same device International Mobile Equipment Identity (IMEI) value (497,124 tests); and tests identified as conducted on the same device within a one-minute period but which included hundreds or thousands of points along multiple-mile stretches of road (approximately 228,107 tests). While such tests represent only 4.6% of certified challenger speed tests that were within the coverage map of the provider tested, they indicate that certain challengers may have submitted data without fully verifying their results.[2]

3. Anomalies within the challenger speed test dataset also call into question the reliability of challenger data in establishing actual on-the-ground consumer experience in specific areas. For example, unlike other challengers who reported connecting to servers within the U.S. and often within the same state, one challenger submitted 72,877 tests conducted in Kansas that reported connecting to a server in Roubaix, France, and every speed test that ran on this server failed—meaning that it recorded a download speed below 5 Mbps. Another challenger submitted and certified almost 1.7 million tests that were within the coverage of the providers tested, all of which failed. There are also several instances where challengers obtained only zero download speeds in the same geographic area where Commission staff obtained speed tests with much higher speeds.

4. In addition, data submitted by challengers were sometimes internally inconsistent. For example, one challenger submitted speed tests taken in and around two cities in Alabama on one day that had download speeds of zero but a strong signal, but also submitted data for speed tests taken the following week along a similar route that recorded download speeds far exceeding 5 Mbps, also with a strong signal. This same challenger also submitted speed test data that were inconsistent between devices of the same model. The challenger recorded speed tests taken by two distinct devices of the same model that show largely divergent results in the same general areas. For example, of the 187,182 speed tests

[1] We note that variance among challenger data could result from different testing methodologies, from the different networks tested and the varying quality of those networks across states, as well as from terrain, weather, or other factors. Similarly, significant variation in results from a single challenger between two different handset models could be due to the specific characteristics of a particular model (i.e., different cellular modems or device design) or could reflect differences in the quality of the network for different areas tested. Some variance, however, could reflect anomalies, such as a faulty device, especially when starkly divergent results were recorded on the same device model (but two separate devices as identified by IMEI codes) within the same state or even the same general area.

[2] Conducting the same analysis across all certified challenger speed tests, including those that were not within the coverage map of the provider tested, does not meaningfully change the results, with erroneous data representing 4.4% of all certified challenger speed tests.

taken with the device with IMEI ending 0755 (Device 0755), 95.3% recorded a download speed of zero, and only 35 tests achieved a download speed of at least 5 Mbps. In grid cells where Device 0755 recorded an average signal strength of -110 dBm or higher, the device consistently averaged download speeds of between 0 to 0.1 Mbps (see Figure B-1 and Figure B-2).[3] The device with IMEI ending in 9244 (Device 9244) took 49,939 speed tests across a similar area and recorded similar average signal strength values but a wider range of download speed values (see Figure B-3 and Figure B-4).[4] Nearly 19% of Device 9244's speed tests achieved a download speed of at least 5 Mbps.

5. Taken together, these errors, anomalies, and inconsistencies implicate at least 15.4% of the certified within-coverage speed test data submitted by challengers.[5] Such issues raise concerns about using challenger speed test data as evidence that 4G LTE coverage is lacking in a specific area, particularly within the framework adopted in the *MF-II Challenge Process Order*. Without further information concerning the challenger's testing procedure and methodology or the state of the provider's network during that time period of the test, it is difficult to determine from inconsistent data which set of varying speed test results is more indicative of expected consumer performance in a particular area.[6] Further, anomalies and inconsistencies suggest that a number of factors that were not addressed or specified by the Commission in the *MF-II Challenge Process Order* can affect speed test results in ways that may not reflect a consumer's typical on-the-ground performance.[7]

[3] For Device 0755, the mean recorded signal strength per grid cell ranged from -168 dBm to -60 dBm.

[4] For Device 9244, the mean recorded signal strength per grid cell ranges from -186 dBm to -60 dBm.

[5] Further analysis of the data may reveal additional anomalies or inconsistencies. This calculation also does not include those speed tests recorded in areas where Commission staff speed tests were conducted that show significantly faster download speeds. Analyzing across all certified challenger speed tests, these erroneous, anomalous, and inconsistent speed tests represent 15.6% of such data.

[6] However, as discussed in Section 2 of this appendix, results from the staff speed tests in the same area recorded download speeds meeting or exceeding 5 Mbps, indicating that the challenger speed tests with download speeds of zero were likely anomalous.

[7] For example, if a challenger happened to purchase a device with faulty hardware, or if other conditions on the handset negatively impacted network performance, such results could accurately have recorded throughput on the particular handset while also being unrepresentative of typical performance.

Figure B-1. Device 0755 – Average RSRP Signal Strength by Grid Cell

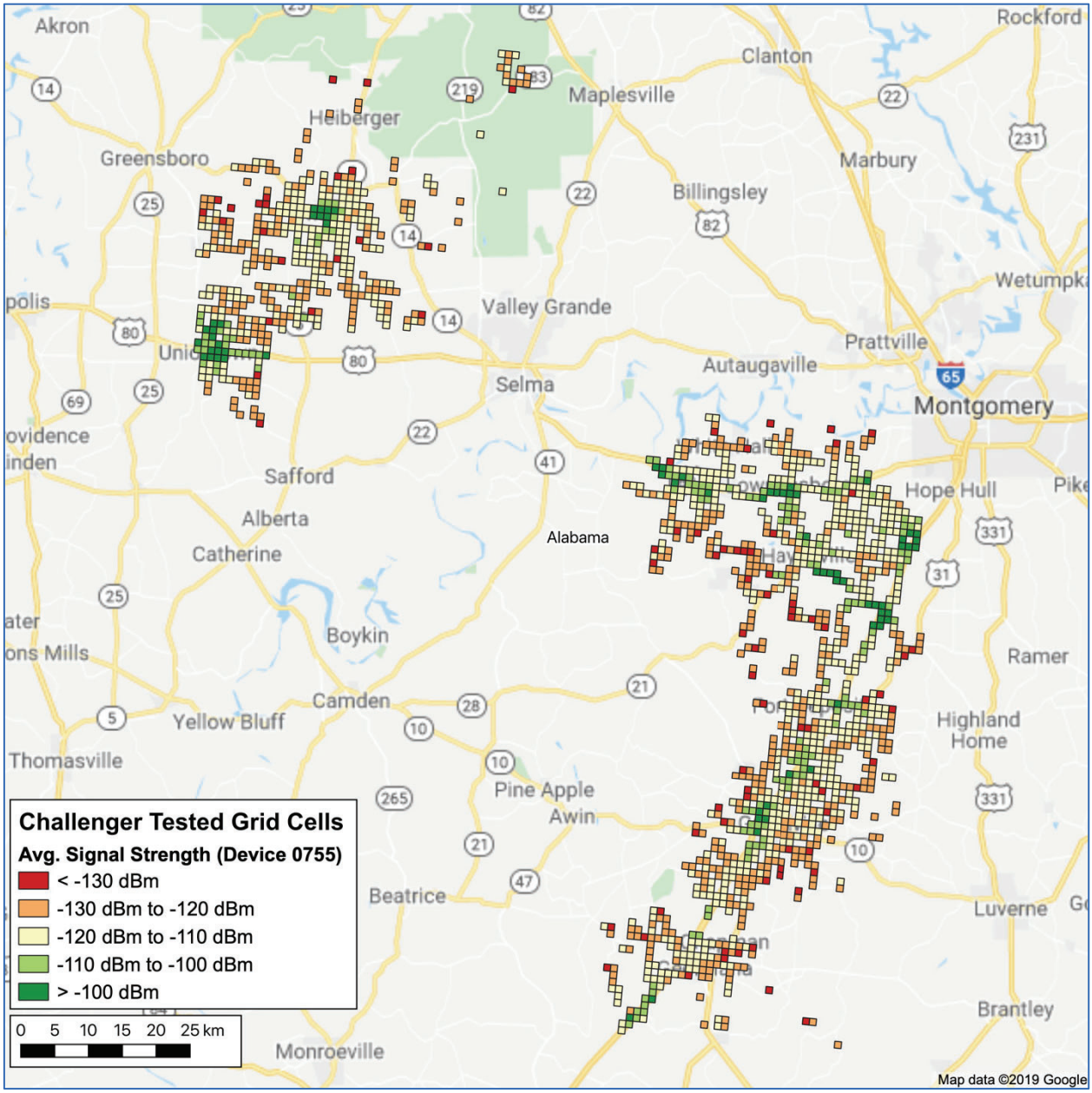


Figure B-2. Device 0755 – Average Download Speed by Grid Cell

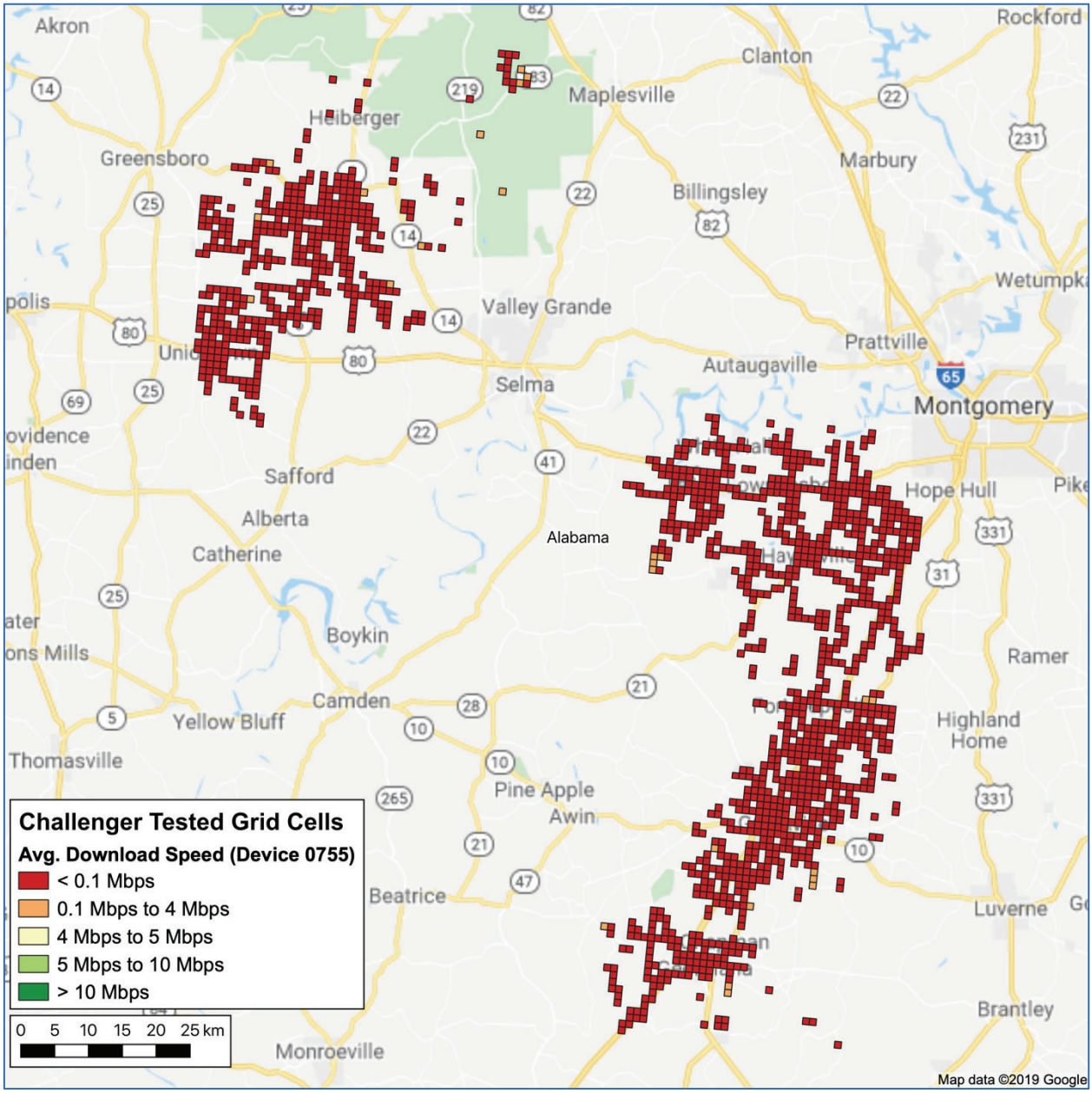


Figure B-3. Device 9244 – Average RSRP Signal Strength by Grid Cell

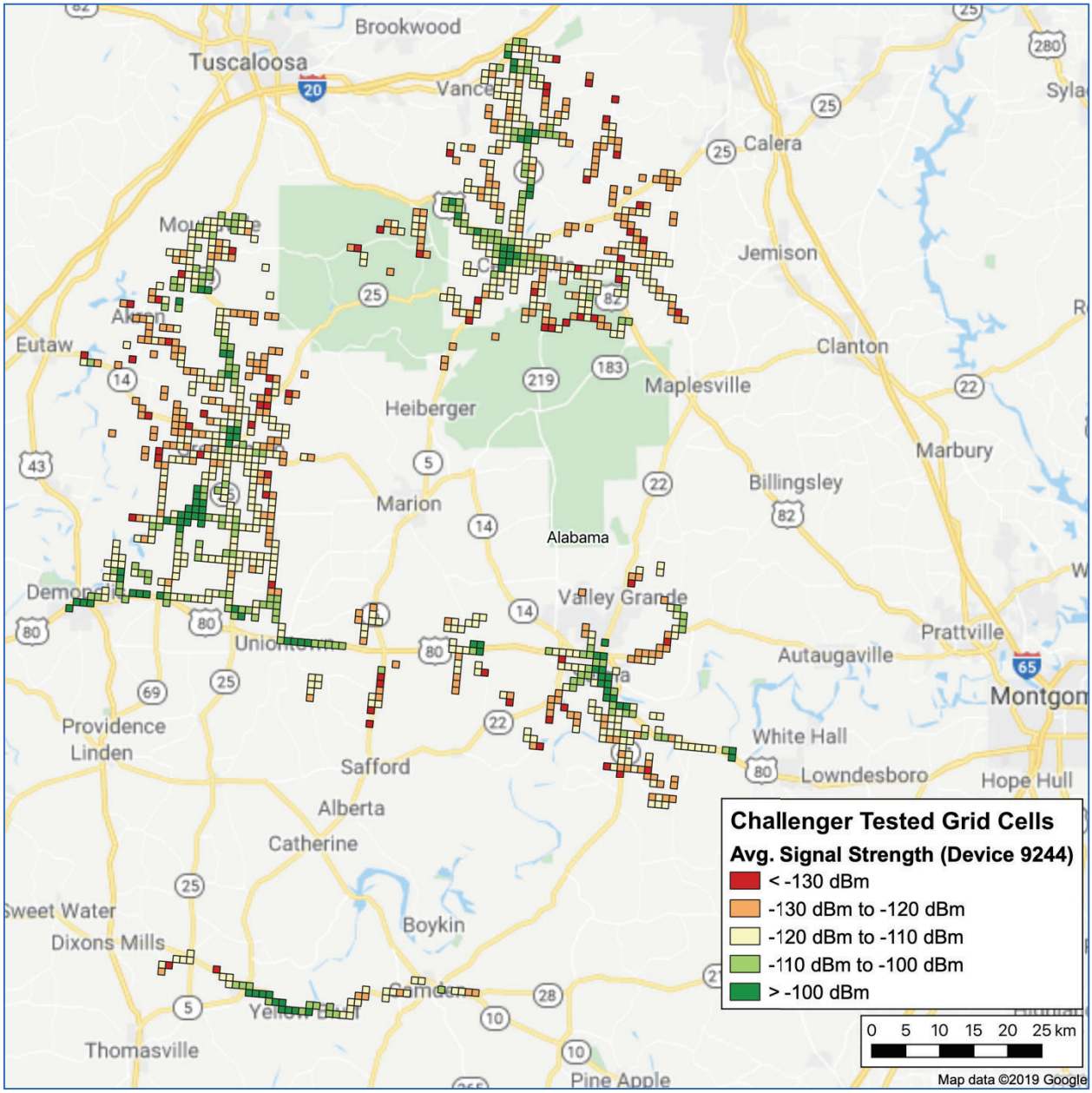
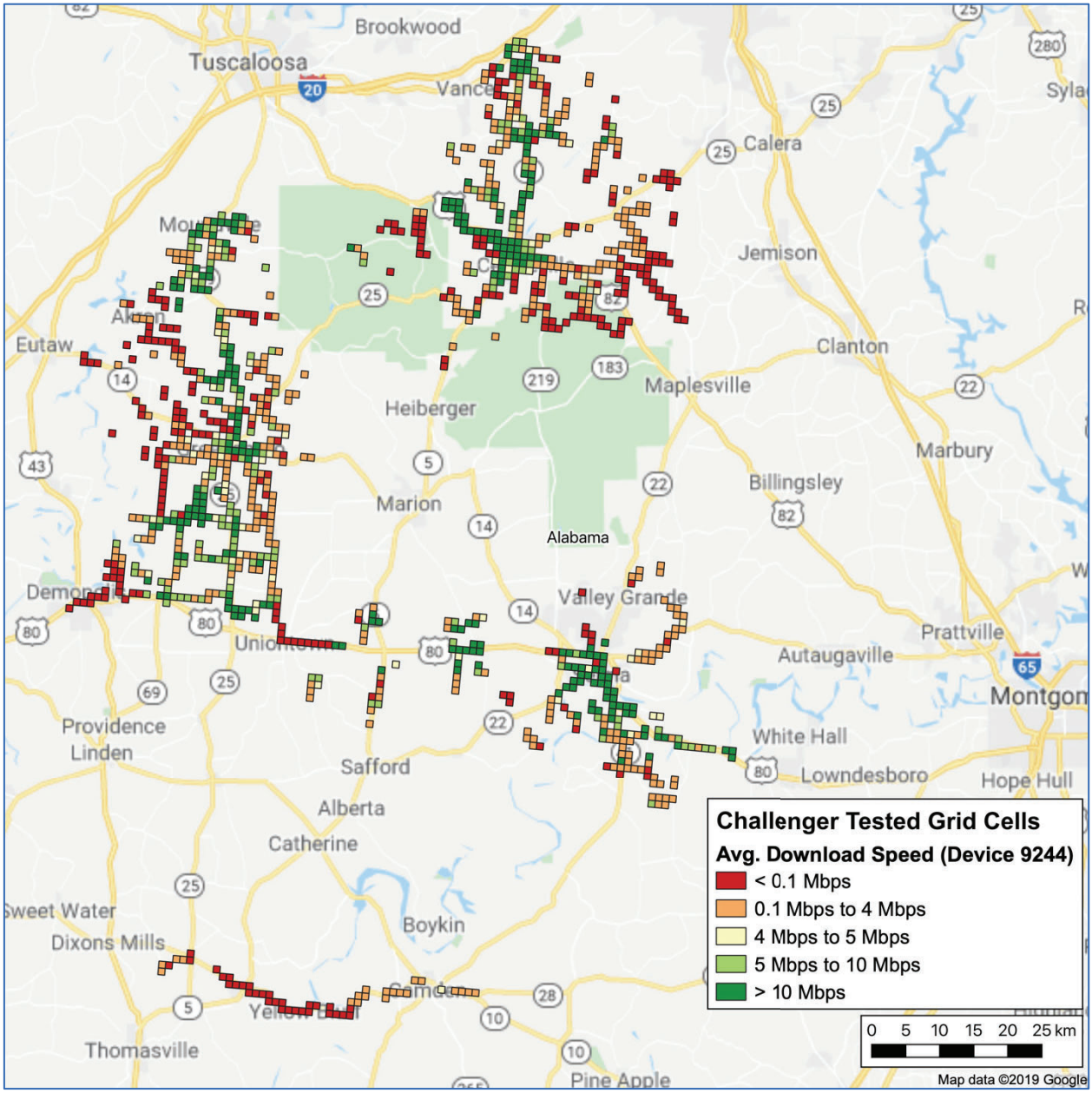


Figure B-4. Device 9244 – Average Download Speed by Grid Cell



6. Lastly, analyzing the challenger speed test data using the automated system processing framework adopted by the Commission highlighted some of the inconsistencies in the challenger speed test data even within the same one square kilometer area. After speed tests were submitted, the MF-II Challenge Portal system created a "buffer" (i.e., drew a circle) with a radius of 400 meters around each geographic point where a valid speed test recorded a download speed below 5 Mbps, and then, for each grid cell, calculated whether the area for all buffered points covered at least 75% of the ineligible area in the cell to determine its presumptive status—that is, whether the challenge was presumptively successful

or unsuccessful.[8] While this approach may lead to a reliable determination of whether a challenger has established a lack of 4G LTE coverage in a grid cell when a challenger submits a small number of stationary speed tests conducted at different points within the grid cell, it is less reliable for data where a challenger conducted dozens of continuously recorded drive tests along roads within a grid cell.[9] In particular, staff analysis revealed that, while the system calculated that 35.9% of challenged grid cells were presumptively successful, when conflicting evidence within those same grid cells was considered—that is, speed tests showing download speeds of 5 Mbps or greater—the percentage of presumptively successful grid cells dropped to 16.2%.[10] This indicates that a large portion of challenger data include speed tests both above and below 5 Mbps within the same general area. We note that challengers were required to submit data for all speed tests, including those showing speeds greater than or equal to 5 Mbps, and Commission staff would adjudicate each challenge on a preponderance-of-the-evidence standard based on all the evidence submitted by challengers and challenged parties.[11] Nevertheless, the presumptive status as calculated may not provide an accurate assessment of where mobile 4G LTE coverage exists.

2 Comparison of Staff Drive Tests to MF-II Challenger Speed Tests

7. Commission staff conducted drive tests in certain areas that were also the subject of significant numbers of challenges. For more than half of the grid cells in which staff conducted drive tests, challengers had submitted speed tests as well. We were therefore able to compare the results of staff drive tests to challenger speed tests that were conducted in close proximity to one another.[12] For the analysis here, we chose to compare staff and challenger speed tests that were measured within 100 meters of one another. This comparison shows that the two sets of tests resulted in significantly different recorded download speeds in many cases.[13] When compared to 4G LTE staff drive tests conducted within 100 meters, challengers generally reported much lower speeds at the same RSRP signal strength (see

[8] *MF-II Challenge Process Order*, 32 FCC Rcd at 6310-11, paras. 55-56; *Connect America Fund; Universal Service Reform – Mobility Fund*, Order on Reconsideration, 33 FCC Rcd 4440, 4441-42, para. 4 (WTB/WCB 2018); *MF-II Challenge Process Procedures PN*, 33 FCC Rcd at 2002-03, para. 38.

[9] For example, if a challenger submitted 100 drive tests within the same grid cell, most of which recorded download speeds greater than or equal to 5 Mbps but some of which recorded speeds below 5 Mbps, the challenge process framework as adopted considers only the tests below 5 Mbps in determining the presumptive status of the challenge. Instead, a more appropriate framework for processing a large number of speed tests recorded in a short time period over a limited area could be the use of statistical calculations (e.g., 90th percentile) to mitigate noise in the data due to the variability of wireless networks.

[10] To perform this analysis, staff extracted all certified challenger speed tests that recorded download speeds of at least 5 Mbps and were otherwise valid. These extracted speed tests were then processed as if the data had been submitted by the challenged provider as respondent speed tests, and the system calculated a new presumptive status. *See MF-II Challenge Process Procedures PN*, 33 FCC Rcd at 2024-26, App. B (outlining the methodology by which the system processes response evidence).

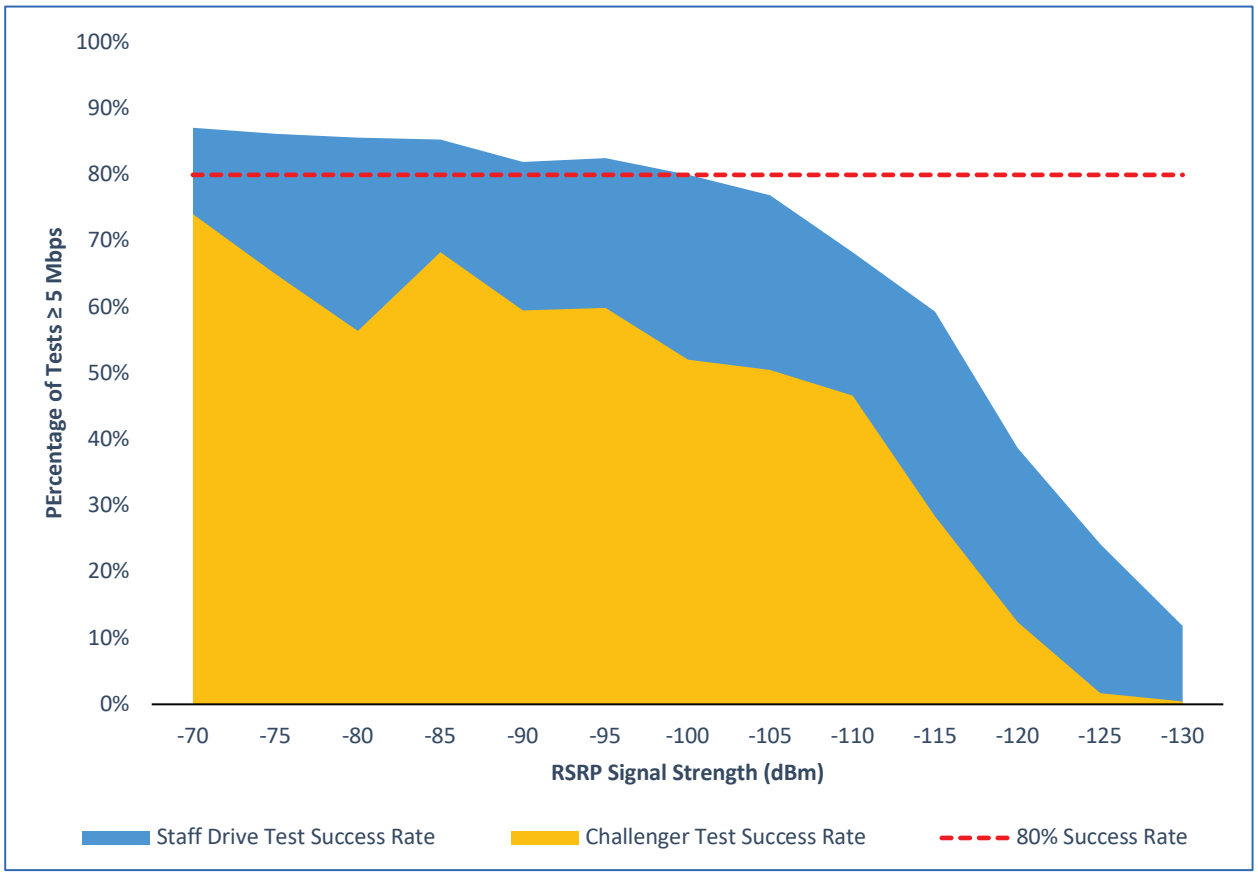
[11] *MF-II Challenge Process Order*, 32 FCC Rcd at 6313, para. 63; *MF-II Challenge Process Procedures PN*, 33 FCC Rcd at 2013-14, para. 66.

[12] Because challengers did not disclose whether tests were conducted while drive testing or while stationary, we are unable to identify which challenger speed tests were the results of drive tests. However, the patterns in the data (e.g., distance and time between tests) indicate that the vast majority of submitted tests were likely drive tests. For the analysis in this section, we have assumed that all challenger speed tests were drive tests to facilitate comparison with staff drive tests.

[13] This analysis was also performed while restricting the sample to tests conducted within 25 meters and the results did not change in any meaningful way.

Figure B-5).[14] Comparing across all staff drive tests, including tests that recorded no signal or were otherwise not on a 4G LTE network, a much higher percentage of challenger tests recorded no download speed (see Table B-1). The observed staff success rate (drive tests with a download speed of at least 5 Mbps) in the sample is 54.8%, while the observed challenger success rate is only 22.2% (see Figure B-6). This is in part due to the large number of tests in the challenger data that recorded a download speed of zero; just over 60% for challenger speed tests compared to only 23.2% of staff drive tests. Both the average (mean) and median download speeds are considerably lower in the challenger speed test data than the staff data.

Figure B-5. Success Rate of 4G LTE Staff Drive Tests and Challenger Speed Tests Conducted within 100 Meters of Each Other by RSRP Signal Strength[15]



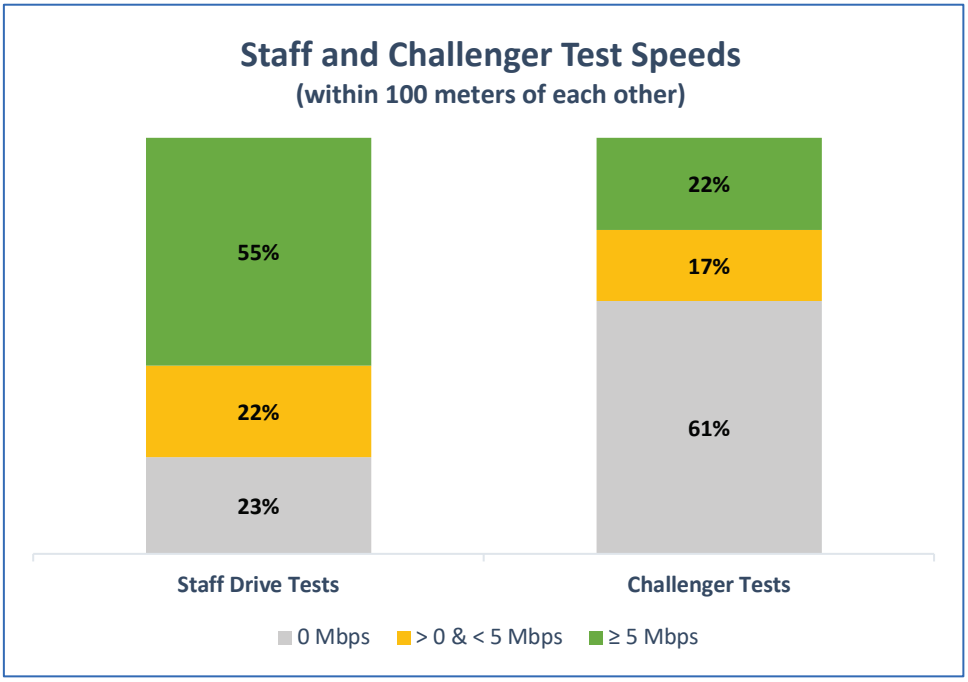
[14] For the comparison in Figure B-5, as with our analysis in Section V.B, we have included only the staff drive tests that were recorded as conducted on a 4G LTE network, as there is no RSRP value for tests that recorded no signal or that were conducted on a non-4G LTE network. *See supra* note 117.

[15] The 4G LTE staff drive test success rate portion of Figure B-5 (in blue) differs slightly from the graph in Figure 24 because the latter includes all of the 19,508 4G LTE staff drive tests within the signal strength range, while Figure B-5 includes only the 9,355 4G LTE staff drive tests within the signal strength range that were also conducted within 100 meters of challenger speed tests.

Table B-1. Staff Drive Tests and Challenger Speed Tests Conducted within 100 Meters of Each Other

Dataset	Test Count Total	Percentage Zero Mbps	Percentage ≥ 5 Mbps	Median Speed	Average Speed	Average Speed Excl. Zeros
Staff (Only 4G LTE)	9,355	4.4%	71.4%	11.1 Mbps	18.6 Mbps	19.5 Mbps
Staff	12,189	23.2%	54.8%	6.6 Mbps	14.3 Mbps	18.6 Mbps
Challenger	87,958	60.8%	22.2%	0.0 Mbps	4.1 Mbps	10.3 Mbps

Figure B-6. Staff Drive Tests and Challenger Speed Test Results by Download Speed Category



8. When tests with zero download speed are excluded from the challenger and staff data sample, challenger speed tests are still significantly slower, averaging 10.3 Mbps as compared to 18.6 Mbps in the staff data. Except for the Arizona route, the differences between the staff and challenger success rates are significant, but the differences are similar across test routes (see Table B-2). For example, the success rate of staff drive tests is at least double the success rate of challenger speed tests conducted within 100 meters of each other for five of the route-provider combinations. For no route was the success rate for staff drive tests lower than the challenger data.[16] An example of these differences is the Alabama route, which contained the most staff drive tests and challenger speeds tests that were within 100 meters of each other. Along the Alabama route, staff recorded download speeds of zero no more than 20.5% of the time, as compared to between almost 44% and slightly more than half of the time with challenger data, depending on the provider tested. The discrepancy between datasets in Montana on Verizon's network is even starker, as more than 80% of staff drive tests achieved download speeds of at least 5 Mbps versus approximately 8% of challenger speed tests.

[16] On only one route (Arizona) did the success rates match, with each staff drive test and challenger speed test recording a download speed of zero, albeit with fewer staff measurements than in other areas.

Table B-2. Staff Drive Tests and Challenger Speed Tests Conducted within 100 meters of Each Other by Route

Test Route	Provider Name	Dataset	Median Speed	Average Speed	Percentage Zero Mbps	Percentage ≥ 5 Mbps	Test Count
Alabama	T-Mobile	Staff	10.5 Mbps	21.0 Mbps	20.5%	64.8%	3,390
		Challenger	0 Mbps	5.3 Mbps	50.3%	30.0%	25,444
	Verizon	Staff	5.2 Mbps	10.6 Mbps	15.1%	51.0%	3,413
		Challenger	0.9 Mbps	6.6 Mbps	43.7%	35.0%	21,167
Arizona	Verizon	Staff	0 Mbps	0 Mbps	100%	0%	187
		Challenger	0 Mbps	0 Mbps	100%	0%	2,529
Montana	T-Mobile	Staff	0.1 Mbps	15.5 Mbps	48.1%	26.8%	646
		Challenger	0 Mbps	0.4 Mbps	95.6%	1.8%	15,702
	Verizon	Staff	15.7 Mbps	21.3 Mbps	11.0%	80.5%	626
		Challenger	0 Mbps	1.5 Mbps	70.7%	8.1%	11,576
Oklahoma	Verizon	Staff	9.6 Mbps	13.7 Mbps	10.6%	68.2%	1,490
		Challenger	0 Mbps	5.2 Mbps	53.9%	28.2%	9,281
Vermont	U.S. Cellular	Staff	2.3 Mbps	6.5 Mbps	25.9%	42.9%	983
		Challenger	1.2 Mbps	2.6 Mbps	10.8%	19.7%	775
	Verizon	Staff	2.0 Mbps	11.6 Mbps	43.7%	43.1%	1,454
		Challenger	0.6 Mbps	5.4 Mbps	40.9%	31.5%	1,484

9. The causes of the large differences in measured download speed between the staff and challenger speed tests taken within the same geographic areas, as well as of the high percentage of tests with a download speed of zero in the challenger data, are difficult to determine. Discrepancies may be attributable to differences in testing methodologies, network factors at the time of test, differences in how speed test apps or drive test software process data, or other factors.[17] We acknowledge that some aspects of conducting speed tests along with other parameters or factors that could affect the results were left unspecified by the Commission in the *MF-II Challenge Process Order* to provide flexibility to and reduce burdens on challengers.[18] Had the Commission further standardized the methodology and speed test parameters, such results may have been less divergent from the staff speed tests. Given the large differences between challenger and staff results however, we are not confident that individual challenger speed test results provide an accurate representation of the typical consumer on-the-ground experience.

[17] The factors could include, among others: (1) the characteristics of the server (or servers) that a speed test application connects to – including the server's location, load, and Internet connection speed; (2) the method by which a speed test app measures the download speed portion of a speed test (e.g., network protocol or file size of transmitted data); and/or (3) the number of simultaneous downloads occurring on the test phone during the test. However, the speed test data required for the MF-II challenge process does not provide the granularity necessary to determine which of these factors may be potentially influencing the measurement results.

[18] *MF-II Challenge Process Order*, 32 FCC Rcd at 6307-08, para. 49; *MF-II Challenge Process Procedures PN*, 33 FCC Rcd at 1999-2000, paras. 29-30.

APPENDIX C:

Resources

1. Additional information about the MF-II proceeding, one-time collection of 4G LTE coverage data, and the MF-II challenge process is available at the Mobility Fund Phase II website: https://www.fcc.gov/mobility-fund-phase-2.

2. Data referenced in this report, including the results of staff testing, as well as challenger speed tests submitted during the MF-II challenge process, can be downloaded at: https://www.fcc.gov/mobility-fund-phase-2#data.

3. Current and historical FCC Form 477 geographic information system data for mobile broadband deployment, including the December 2017 4G LTE coverage by mobile service providers discussed in Section IV and displayed as part of the maps in Section V.B, is available at: https://www.fcc.gov/mobile-deployment-form-477-data.

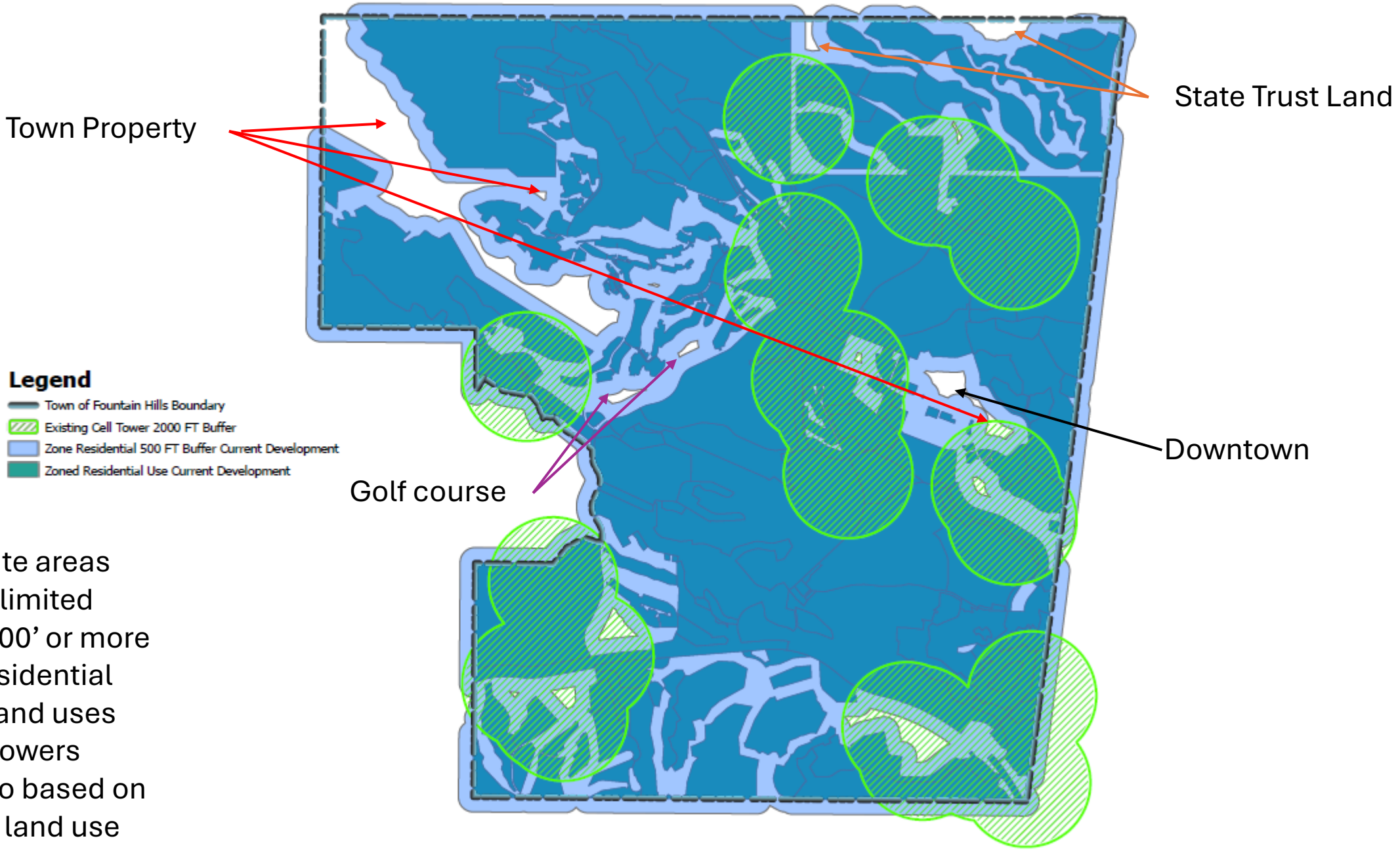
4. The maps shown in Section V.B are also available as part of an online, interactive map available at: https://www.fcc.gov/reports-research/maps/mobility-fund-phase-ii-investigation-staff-report-map.

5. Information on the Commission's efforts to improve broadband data mapping is available at the Digital Opportunity Data Collection website: https://www.fcc.gov/digital-opportunity-data-collection-dodc.

6. Additional information on the Commission's efforts to measure broadband performance is available at the Measuring Broadband America website: https://www.fcc.gov/general/measuring-broadband-america. The Commission also publishes the FCC Speed Test app, developed by SamKnows Ltd., which the public can use to conduct on-demand, user-intiated speed test measurements using mobile devices. The FCC Speed Test app can be downloaded on iOS devices from the Apple App Store (available at https://apps.apple.com/us/app/fcc-speed-test/id794322383) or on Android devices from the Google Play Store (available at https://play.google.com/store/apps/details?id=com.samknows.fcc).

7. Further information about the Commission's rural broadband auctions is available at: https://www.fcc.gov/auctions/ruralbroadbandauctions.

8. Questions about the MF-II Coverage Maps Investigation Staff Report may be emailed to the Commission's Rural Broadband Auctions Task Force at ruralbroadband@fcc.gov.



The white areas are the limited areas 500’ or more from residential zoning and uses where towers could go based on current land use

Given the current request for residential uses downtown, the area available downtown will be reduced as shown in this map once developed

