Agenda Item #:	A
Meeting Date:	June 26, 2019
Responsible Staff:	Deane Mellander

SUBJECT: Review and Recommendation to Mayor and Council - Zoning Text Amendment TXT2019-00251 - Small Cell Antennas; Mayor and Council of Rockville, Applicants

RECOMMENDATION
(Include change in law or Policy if appropriate in this section): Review the staff report and provide a recommendation on the text amendment to the Mayor and Council for the public hearing on September 9, 2019.

Overview

Case: Zoning Text Amendment TXT2019-00251

Location: City-Wide

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Applicant: Mayor and Council of Rockville

Filing Date: April 2, 2019

Background

The wireless industry got its start in the last quarter of the 20th century. Advances in electronic miniaturization made hand-held portable phones possible, which led to the initial pattern of cellular reception. Initially, the service was provided by what are now termed macro installations – installation of antenna support structures (typically, monopoles) spaced every few miles to provide overlapping service areas. If a user was mobile, the system would switch the carrier signal from one cellular antenna to the next to avoid signal drop.

As these installations proliferated, public pressure to regulate them increased. States and local jurisdictions began passing legislation intended to try and minimize the impact of these installations on the surrounding neighborhoods. In 1996, the Federal Government stepped in and passed the Telecommunications Act of 1996 (the "Act"), which gave the Federal Communications Commission (FCC) general authority to regulate the wireless industry. Under the Act, Federal law prohibits state and local regulations that "prohibit or have the effect of

prohibiting the ability of an entity to provide ... telecommunications service." The Act applies to, among other things, the deployment of telecommunications infrastructure – including the deployment of small wireless facilities.

When the cellular system was initially designed it was for simple telephone service and there may have been one user per dwelling, and a few users at the place of employment or on the road. The macro sites were generally sufficient for this level of service.

A simple phone call does not use much bandwidth, but the proliferation of "smart" phones and other devices capable of video data streaming and the overall increase in the number of users means that the cell service areas need to be subdivided to maintain and increase the bandwidth service for both normal private user services but also to address future demands for public services such as self-driving vehicles. Today, there may be four or five users per dwelling, and many homes have replaced land line service with wireless. Many employers require most or all of their employees to carry cell phones to facilitate fast contact.

The pending introduction of a new fifth generation ("5G") wireless system will substantially increase the size of the data stream. To accommodate this system, the number of cellular antenna locations will need to be substantially increased. This means that antennas will need to be located within several hundred feet of each other to provide full coverage.

On September 26, 2018, the FCC adopted a declaratory ruling and order (the "FCC Order") broadly interpreting the Act and limiting or pre-empting local government authority on many issues related to the deployment of small cell wireless facilities. Although the FCC Order is being challenged in the courts by numerous local governments from across the United States, it went into effect on January 14, 2019. The City is a participant in one of the pending lawsuits.

Under the FCC Order, "small wireless facilities" are defined as facilities that: (i) are mounted on structures 50 feet or less in height including their antennas, 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. Antennas for small wireless facilities can be no more than three cubic feet in volume, and other equipment associated with the facility can be no more than 28 cubic feet in volume.

The FCC Order permits local governments to establish aesthetic requirements for the installation of small wireless facilities. However, the aesthetic requirements must be (1) reasonable; (2) no more burdensome than those applied to other types of infrastructure deployments; and (3) objective and published in advance.

Additionally, the FCC Order also set "shot clocks" which are timeframes in which local governments must act on applications to install small wireless facilities. The FCC Order requires the City to act on an application to install a small wireless facility on an existing structure in sixty days and an application to install a small wireless facility on a new antenna support

structure in ninety days. If an application is not acted on within the applicable timeframes, the City could face a legal challenge and a court order that would allow the installation to occur as submitted.

City Zoning Regulations on Wireless Communication Facilities

The Mayor and Council adopted Zoning Text Amendment TXT2001-00191 in August 2001 to provide a comprehensive set of regulations for wireless telecommunications facilities in the City. This language is incorporated as Section 25.09.08, "Wireless Communication Facility" in the current Zoning Ordinance. The thrust of this section is to regulate the location and installation of macro antenna sites. These are typical multi-antenna installations mounted on monopole towers, lattice towers, or on the sides or roofs of buildings. Wireless facilities mounted on a new free-standing structure, i.e., a monopole or lattice tower, are required to obtain a special exception from the Board of Appeals. Facilities located on an existing building or structure are a conditional use, subject to compliance with the provisions of Sec. 25.09.08.b.

These macro sites, which usually consist of three large panel antennas facing in different directions for each carrier, generally provide wireless service coverage for a radius of about 2 to 4 miles. The spacing between the macro antenna locations is dependent on several factors, including elevation, density of wireless traffic, and intervening trees or structures than can attenuate the signal strength. In dense urban areas, there can be gaps in service because of the height and density of the built environment. Small cell antennas, which are a relatively new and evolving technology, serve several functions – they can fill in service gaps; provide additional service in high-traffic areas like city centers; and support 5G wireless service.

Under the current provisions for wireless communications facilities in Section 25.09.08, panel antennas, which can be up to two feet in width and six feet in height, may be mounted on existing buildings or structures that are at least 35 feet in height if used for nonresidential purposes, and 50 feet in height on a multi-family residential building. Antennas may also be located on a ground-mounted support structure, i.e., a monopole or other antenna support structure if the structure receives approval of a special exception by the Board of Appeals. In addition, if a ground-mounted support structure is proposed to be more than 50 feet tall in a residential zone or within 500 feet of a residential zone, or more than 199 feet tall in a nonresidential zone, the Mayor and Council must grant a waiver of the height restrictions under Section 25.09.08.e.3.

The proposed regulations cover small cell antennas intended primarily associated with the advent of 5G wireless service. In order to achieve the coverage intended by the FCC, there will need to be a network of antennas spaced perhaps 700 – 1,000 feet apart. The antennas themselves are small – limited to 3 cubic feet – but the support equipment can be larger. Several examples of current and proposed installations are shown in Attachment A. For single installations the equipment can often be mounted on the support structure or within the base of the structure (such as a light pole) if so equipped.

Analysis

Specific Zoning Ordinance Revisions

It is expected that the majority of small cell installations will be located on existing structures within the public right-of-way. Installations within the public right-of-way are regulated by authority of Chapter 21 of the City Code, "Streets and Public Improvements," not the Zoning Ordinance. These regulations have already been promulgated by the Director of Public Works (see Attachment B).

The intent of the proposed amendment is to revise the City's Zoning Ordinance to be in compliance with the FCC Order while also allowing the City to regulate the deployment of small cell antennas that are not within public right-of-way in a manner that meets the needs of the city. Small cell antennas can be much smaller than the typical tower-mounted cell antennas. Normally, only one omnidirectional antenna is needed.

The text amendment as authorized (see Attachment C) proposes to define small cell antennas as being no larger than three cubic feet in size, which is consistent with the FCC Order. Cumulative volumetric standards of 28 cubic feet are also proposed for equipment enclosures, which is also consistent with the FCC Order.

The definitions for the following terms: Antenna, Antenna support structure, Colocation, Wireless communication facility, and Wireless communication service, have all been revised to reflect the current terminology and to reflect the language in the FCC Order. A new definition for "Wireless communication facility, small" is proposed to be added to specifically address the regulation of small cell facilities in a manner consistent with the FCC Order.

The proposed text amendment revises the current language to essentially separate the regulations between small cell antennas and other types of antenna installations, including macro sites and monopoles. The language has also been revised to be consistent with the terminology contained in the FCC order. In some cases, the existing language has been reordered for better clarity of intent. The amendment also proposes to increase the allowable height of macro panel antennas from six feet to eight feet, in line with current industry practice.

A new subsection d is proposed to be added specifically to regulate the installation of small cell antennas on private or public property, outside of public right-of-way. For those installations outside of public rights-of-way to which the Zoning Ordinance will apply, the regulations can be summarized as follows:

- No small cell antennas can be located on a single family detached, semi-detached, or townhouse dwelling. No small cell antenna can be located on an accessory building or structure located on the same lot as a dwelling.

- Small cell antennas must be located at least 25 feet from a single-family dwelling, and 250 feet from another antenna support structure.
- Installations must be designed and located to minimize visual impacts, including use of stealth technology.
- Support equipment must be enclosed and cannot exceed 5 feet in height.
- Small cell antennas cannot exceed 3 cubic feet in volume, and support equipment cannot exceed an aggregate total of 28 cubic feet in volume.
- Where underground utilities are required, any equipment enclosures must be located below grade unless incorporated into the base of the support structure.
- No installations permitted on an historic structure or within a designated historic district where any portion of the installation except the antenna is visible from the ground.
- If the installation is no longer in use, it must be removed by the owner at their expense.
- No hazardous materials can be stored on the site.

The land use tables for the residential, mixed use and industrial zones are proposed to be amended to reflect the revisions in Article 9. Small cell antennas are added as a conditional use, subject to the new provisions. The current regulations for wireless facilities are still applicable in the RMD (Residential Medium Density) zones. In the industrial zones, the wireless provisions are proposed to be relocated within the tables from the Assembly and Entertainment section to the Industrial and Service Uses section to better reflect the characteristics of the use.

Under the FCC Order, the City is prohibited from requiring a wireless provider to prove that there is a gap in coverage and that a small wireless facility is needed in a particular location. Further, the FCC Order limits the City's ability to enact spacing and underground requirements.

Surrounding Jurisdictions

The staff notes that both Montgomery County and the City of Gaithersburg have adopted text amendments to regulate small cell antennas in a similar manner to what is proposed. The County has limited small cell antennas to six cubic feet with a maximum length on any side of four feet two inches. Antennas are allowed in the Commercial/Residential, Industrial, and Employment zones as a limited use and must be mounted at least 15 feet off the ground. Such antennas may be mounted on replacement utility poles, streetlight poles or site-plan approved parking lot poles. If located within the right-of-way, the Department of Permitting Services must approve the location for safety purposes. A text amendment to permit them in the residential zones did not pass in the last County Council term.

In Gaithersburg, the size limit is 2.5 feet wide by four feet tall. Gaithersburg also requires that any small cell antenna located on a multi-family building be at least 20 feet off the ground, with the minimum being 15 feet for any non-residential or mixed-use structure.

Community Outreach

Notice of the filing of the text amendment and Planning Commission meeting date was sent out

to the civic associations and homeowners associations via the City's listserv.

Recommendation

Within the regulatory framework set forth in the FCC Order, the proposed amendment will provide the City with some regulatory control over the location and design of small cell antennas deployed outside of the public right-of-way, and the regulations will be consistent with those already in place for installations within public rights-of-way and the FCC order. Staff therefore recommends that Zoning Text Amendment TXT2019-00251 be approved.

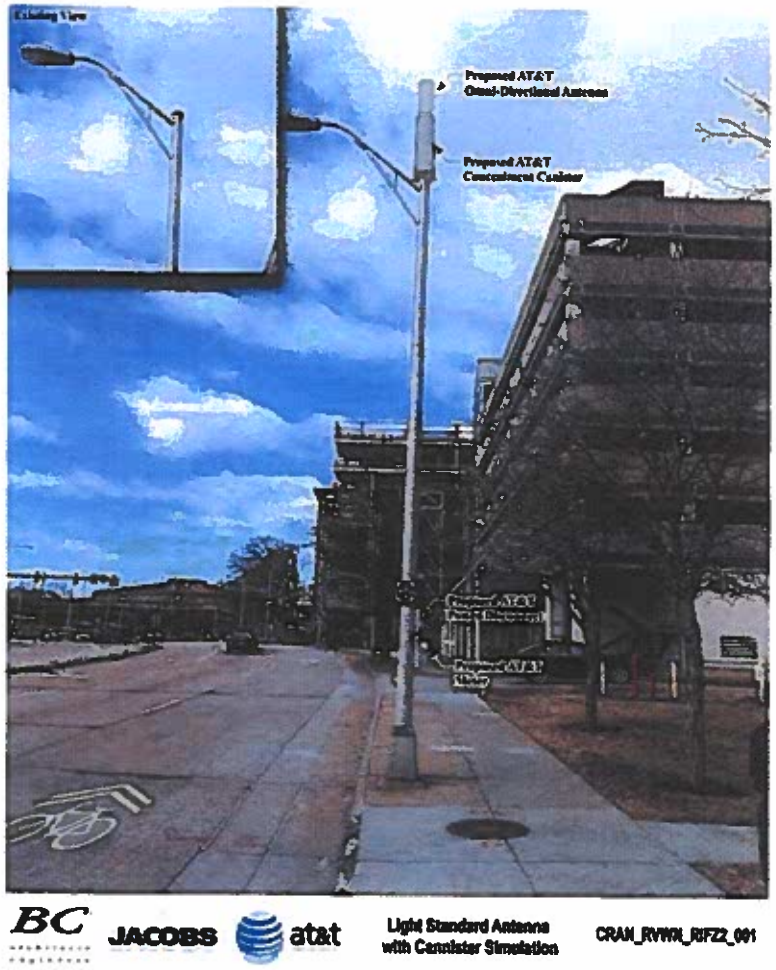
Attachments

Attachment 1.A.a:	Sample small cell installations	(PDF)
Attachment 1.A.b:	Standards for Small Cell Installations in the Public Right-of-Way	(PDF)
Attachment 1.A.c:	Final Draft of Text Amendment TXT2019-00251	(PDF)

Jim Wasilak

Jim Wasilak, Chief of Zoning 6/19/2019

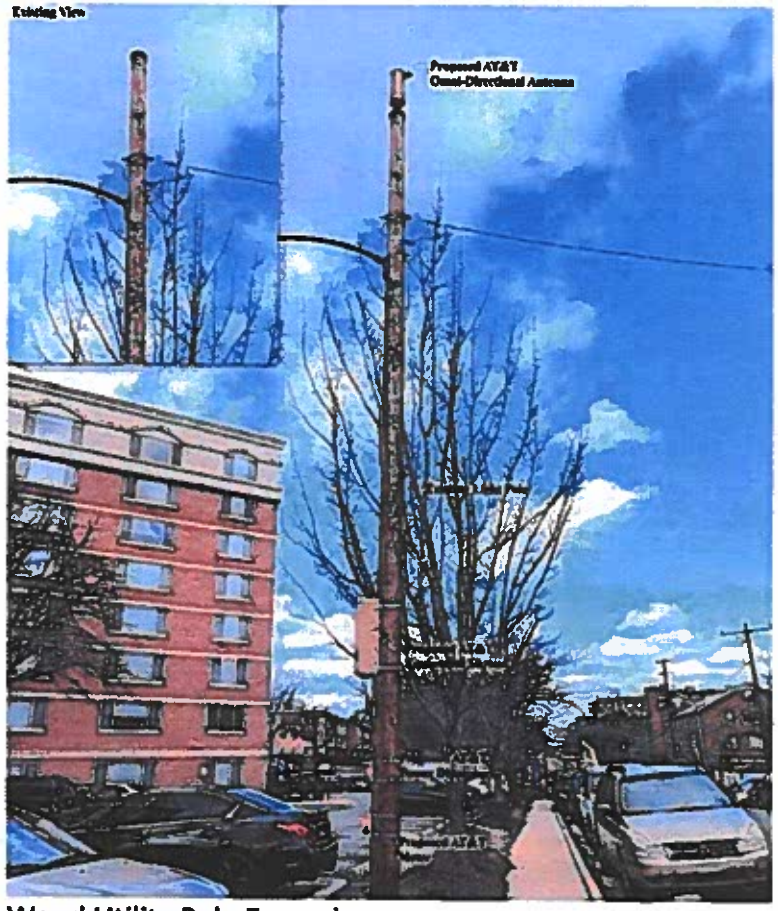
Examples of the AT&T Small Cell Equipment



Small Cell Design – Metal Streetlight

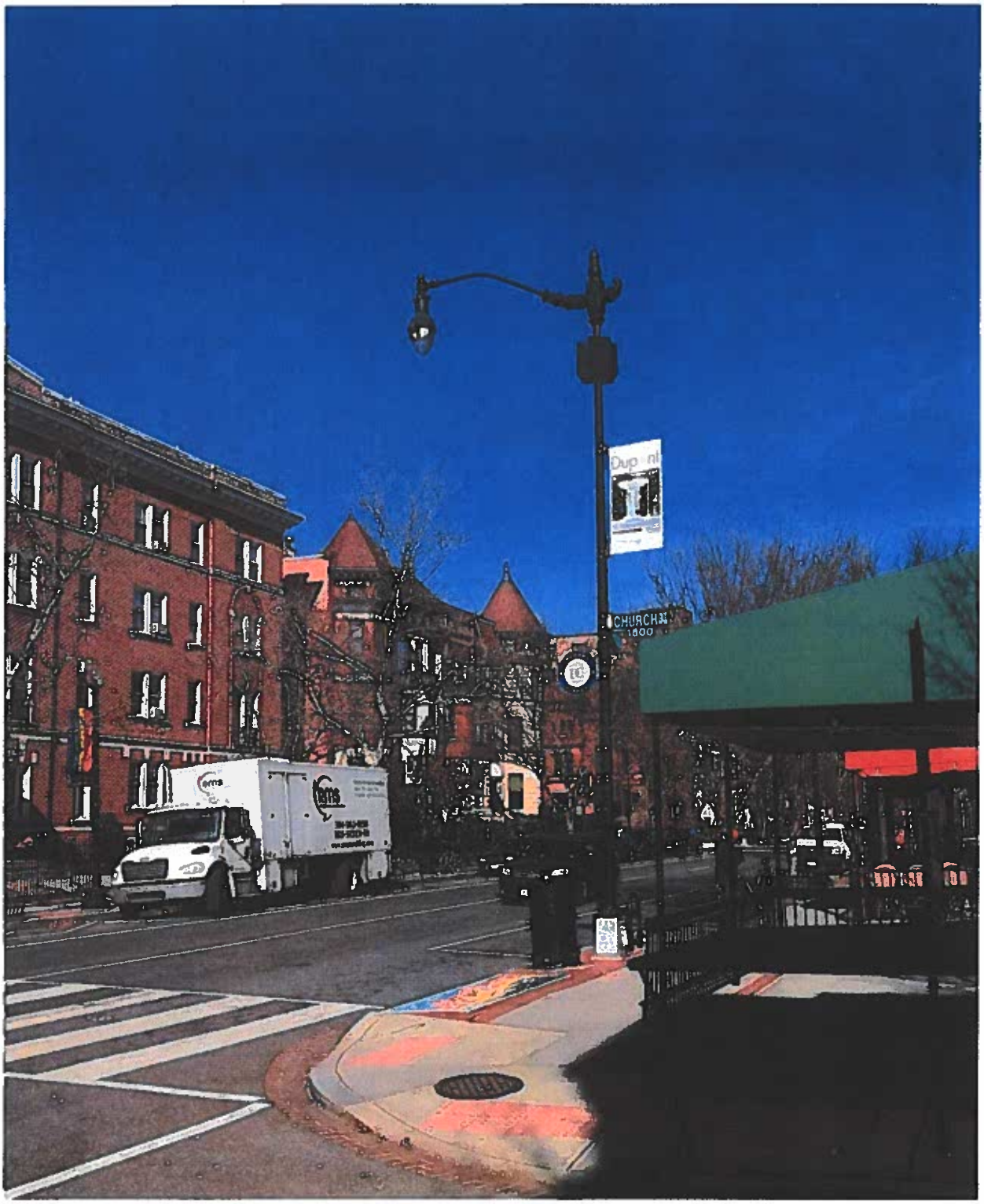
Examples of the AT&T Small Cell Equipment

2100 Baltimore Road, Rockville, MD 20851



Wood Utility Pole Example

Small Cell Design – Wood Utility Pole



PROPOSED VERIZON SMALL CELL INSTALLATION

Attachment 1.A.a: Sample small cell installations (2641 : Zoning Text Amendment TXT2019-00251 - Small Cell Antennas)

PROPOSED VERIZON SMALL CELL INSTALLATION

Small Wireless Facilities

Small Wireless Facility Standards

Height Standards

1. Small wireless facilities may not be mounted on structures greater than 50-feet in height including the antenna.
2. Small wireless facilities may not be mounted on structures more than 10 percent taller than other adjacent structures.
3. Small wireless facilities may not be mounted on existing structures which cause the structure to extend to a height of more than 50-feet or more than 10 percent taller than adjacent structures, whichever is greater.

Antenna and Other Small Wireless Equipment Size Standards

4. Each antenna associated with a small wireless facility can be no greater than 3 cubic feet in volume.
5. All other small wireless equipment associated with the small wireless facility (including any pre-existing equipment on the structure) may not be more than 28 cubic feet in volume.

Installation, Placement, and Design Standards

6. Small wireless facilities must not project over the roadway, pedestrian path or sidewalk and must be placed on a single side of the structure, unless approved by the Director of Public Works.
7. New poles or other structures that support small wireless facilities must maintain a minimum three (3) foot horizontal clearance from existing sidewalks and roadways and a minimum five (5) foot horizontal clearance from the outside edge of driveway aprons and handicapped ramps, unless a lesser clearance is approved by the Director of Public Works.
8. Any exterior attachments to structures (other than cabling), must be a minimum of eight (8) feet above grade, unless approved by the Director of Public Works.
9. Replacement poles must be the same height as the pole being replaced, unless a different height is approved by the Director of Public Works. Any replacement pole, including all required guying, may not intrude on any sidewalk or passageway more than the existing pole, and may not be more than 10 percent larger in circumference than the existing pole, considering the actual dimensions of the pole. Guy wiring must be comparable to that of the pole being replaced.
10. All small wireless equipment installed underground, at ground level, or on a pole must be placed in an enclosure.
11. All small wireless equipment must be consistent with industry standards.
12. Antennas must include shielding or otherwise be placed in an enclosure. If attached to a pole, the shielding or enclosure must be no more than the circumference of the pole at the point of attachment and, if attached to the top of the pole, designed to appear like a continuous vertical extension of the pole. Antennas must not extend more than 36 inches

Small Wireless Facilities

in length, extending vertically from the base of the antenna, either at the top of the pole or structure, or on the related equipment housing, except that up to six (6) inches in additional height may be permitted for connectors.

13. All wires/cables must be located inside the structure, unless Applicant proves to the City's satisfaction that this is not practical, in which case the wire/cable must be installed in a conduit attached flush to the structure and painted with non-reflective paint of the same color as the structure on which it is installed or otherwise concealed to the extent possible. Whenever possible, the Applicant must utilize existing ducts, conduits, or other facilities for the installation of connecting fiber.
14. All visible small wireless equipment placed on a structure, including antennas, must be painted with non-reflective paint of the same color as the structure on which it is sited so that the installation closely matches the existing paint. The Applicant must work with the structure manufacturer or owner regarding the specifics for the color match, and work with the equipment manufacturer regarding paint specifications as well as the method for cleaning the equipment and applying the paint. Antennas and shrouds must be painted to have the least visual impact possible; colors must be approved by the City as part of the permit. Paints must be lead and chromate free. Resistance to ultra violet light, road salt compounds, industrial chemical fumes, solvents for removal of graffiti off painted surfaces, flame or high temperatures, and corrosion.
15. No writing, symbol, logo or other graphic representation which is visible from the nearby street or sidewalk is allowed to appear on any exterior surface of the small wireless facility unless allowed by agreement with the City, required by law or regulation, or as a City-approved concealment element. Notwithstanding the previous sentence, Applicant must tag all attachments to structures to allow for ready identification of the small wireless facility owner and type of attachment.
16. No visible lighting is allowed on any small wireless facilities, except as required by law or as allowed by the City.
17. Any new pole installed to support a small wireless facility must be consistent and compatible with surrounding poles and structures.
18. Installation of small wireless facilities must not impact existing City street trees.
19. Installation of small wireless facilities must not impact line of sight for vehicle or pedestrian movements.
20. Installation of small wireless facilities must not create any Americans with Disabilities Act violations.
21. Small wireless facilities must not interfere with the function of the pole or structure to which the equipment is attached or interfere with other public facilities, including but not limited to:
    a. Signs
    b. Traffic signals
    c. Street lighting
    d. Bike racks
    e. Benches
    f. Fire hydrants
    g. Water meters
    h. Sewer cleanouts
    i. Stormwater facilities
    j. Other utilities

Small Wireless Facilities

22. In an area of the city where utilities are underground, all small wireless equipment must also be placed in an underground vault.
23. Small wireless facilities must be placed, as much as possible, in line with other utility features and in a location that minimizes any obstruction, impediment, or hinderance to the usual travel or public safety on a right-of-way.
24. The Applicant must incorporate ambient noise suppression measures, place small wireless equipment in locations less likely to impact adjacent residences or businesses, or both, and must comply with all applicable noise regulations.
25. The City strongly encourages the collocation of small wireless facilities on existing structures. To minimize visual clutter, distractions to vehicular traffic, and the hazard of poles adjacent to roadways, free standing poles must be spaced a minimum of 250 feet apart on each side of a street. An exemption may be granted by the Director of Public Works if the Applicant can demonstrate that this restriction has the effect of prohibiting the provision of wireless services.
26. Small wireless equipment installed at ground level must incorporate concealment elements into the proposed design. Concealment may include, but is not limited to, landscaping and strategic placement in less obtrusive locations.
27. Small wireless equipment installed at ground level must be painted to have the least visual impact possible; colors must be approved by the City as part of the permit. Paints must be lead and chromate free. Resistance to ultra violet light, road salt compounds, industrial chemical fumes, solvents for removal of graffiti off painted surfaces, flame or high temperatures, and corrosion.

Small Wireless Facility Conditions

1. Applicant must be a member of "Miss Utility" and comply with state law regarding marking utilities.
2. Small wireless facilities located in public right-of-way must not cause a safety hazard to the public.
3. A small wireless facility must be removed from the public right-of-way within 90 days of the final Right-of-Way Access/Attachment payment to the City for the small wireless facility.
4. If a City project requires small wireless facilities to be removed or relocated, the Applicant must remove or relocate all equipment within 30 days' notice by the City at the Applicant's sole cost.
5. Applicant must obtain a permit from the City for any maintenance of small wireless facilities following initial installation.
6. Applicants for small wireless facilities may request a right-of-way agreement for multiple installations with the City.

Small Wireless Facilities

Submittal requirements

Applicant is required to submit the following information with the permit application:

1. Documentation certified by a Maryland Professional Engineer that the pole or other structure to which the small wireless equipment is proposed to be attached is structurally adequate to support the small wireless equipment.
2. Applicant must provide certified analysis showing that the proposed Facility satisfies the Federal Communication Commission ("FCC")'s Radio- Frequency (RF) exposure guidelines applicable on an individual basis, and on a cumulative basis (considering all frequencies, and all emitting sources as may be required by FCC regulations).
3. Applicant must provide a completed utility permit application and checklist.
4. Written authorization from the structure owner that demonstrates that the Applicant has the authority to install a small wireless facility on the structure.
5. All other information otherwise required by Chapter 21 of the City Code and for an application for a Utility Permit.

Approved by: _____ Date: 1/11/19
Director of Public Works

*Addendum to City of Rockville Department of Public Works Standards and Details for Construction