The Committee of 100
on the Federal City

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March 14, 2019

Public Space Committee
c/o DDOT Public Space Permit Office
1100 4th St SW, Room 360
Washington DC, 20024
Att: Small cell

Via email: PublicSpace.Committee@dc.gov

Subject: Draft Small cell guidelines (Version 2 - February 1, 2019)

Dear Mr. Marcou:

The Committee of 100 on the Federal City (C100) was founded in 1923 and continues to work toward protecting and enhancing Washington's historic distinction, natural beauty and overall livability. The Committee is concerned with respecting the L'Enfant Plan of 1791 and the McMillan Commission Plan of 1901-02, while accommodating the needs of the 21st Century, and with providing responsible oversight in all pertinent aspects of citywide planning. These include parks and conservation, historic preservation, visual planning and architecture, land use regulation and renewal planning, pollution control and environmental protection, and transportation planning.

The Committee of 100 is pleased to submit the following comments on the February 1, 2019 draft guidelines for small cell technology.

Introduction

Small cell technology is needed to provide wireless service (including future 5G service) in high-density, high-demand areas, complementing cell towers. Each small cell unit has two parts, an antenna and equipment; thousands of units are expected to be installed in the District, raising major issues on clutter, and effects on viewsheds, the monumental core, all neighborhoods, historic districts, and street trees.

DDOT has released three guidance documents concerning small cell technology:
1. Master License Agreement for Use of District of Columbia Public Right of Way (MLA)
2. Draft Small Cell Design Guidelines (August 24, 2018), and
3. Draft Small Cell Design Guidelines (revised February 1, 2019) (Version 2 Design Guidelines).

Four carriers have signed MLAs: AT&T, Crown Castle (hotelling for T-Mobile and Sprint), Mobilitie, and Verizon. Sprint has not signed the MLA. Any carrier seeking a public space permit to install small cell infrastructure must first execute an MLA and comply with the Design Guidelines. Collectively, the carriers which signed the MLA plan to install between 2,500 and 2,700 small cell faculties in the next five years.[1] All equipment referenced in the MLA and Design Guidelines is 4G equipment; no one knows what 5G equipment will look like.[2]

The Version 2 Design Guidelines improve over the August 24, 2018 guidelines in significant ways:

- PSC promises an "independent design process" for the appearance of free-standing poles and at-grade cabinetry. 2.4
- With one exception, the preferred locations, in order, clarify placement, and appear to respond effectively to carriers' technical comments. 5.2.
- Hotelling is mentioned as an acceptable practice but is not required where it is technically feasible. 1.5
- The number of small cell installations per blockface is generally reduced. Chart 2.
- Small cell infrastructure will not be allowed on twin-twenty or Washington Upright (Washington Globe) poles. 5.1.2.3.
- Small cell infrastructure may not be installed within 10 feet of a building facade or substantial building facade projection. 5.2.3.
- Some additional protections for street trees are provided. 8.4

The Version 2 Design Guidelines should be amended to reduce clutter

1. Order of priority. Instead of "preferred locations," in 5.2.1 the order of priority should be "required locations" and state that any application that does not follow this order of priority must be treated as not consistent with the Version 2 Design Guidelines and processed under 4.2.2.

2. Small cells on rooftops. Every small cell installation on a rooftop reduces clutter on streets. Sprint has received permission from the Old Georgetown Board to replace existing equipment and to install 5G equipment on the rooftops, such as Massive MIMO, which "....use(s) large antenna arrays at base

[1] Figures presented by carriers at the September 6, 2018 meeting:
AT&T: 500
Crown Castle: 1,000
Mobilitie: up to 500
Verizon: 500 to 700

[2] Statement by AT&T representative at Small Cell Town hall meeting on September 13, 2018. See generally Nic Fildes, "Hazy 5G growth agenda nags telecom chiefs," *Financial Times*, 10 Sept. 2018.

stations to simultaneously serve many autonomous terminals, as illustrated in Figure 1."[3] We understand that Sprint plans to install Massive MIMO on other rooftop locations. Sprint's action demonstrates that placing small cell infrastructure on existing buildings is effective and feasible, and that this is a viable alternative to cluttering our streets with 5G poles and cabinets. The Design Guidelines should add rules on locating small cell infrastructure on buildings (e.g., behind a parapet) and integrate this rule with the list of required locations in 5.2.1. .[4] Rooftops should be the first priority for small cell placement and the required order of priority in 5.2.1 for small cell infrastructure, in order, should be:

1. Rooftop locations
2. Existing locations
3. Below streets, such as manhole covers,
4. Standalone poles on streets or alleys.

3. Small cells in manhole covers. In our earlier comments we advocated integrating small cell infrastructure in manhole covers. On September 25, 2018, carriers indicated that there are currently technical shortcomings in manhole cover design. But in 2018, Vodafone UK installed two test manhole covers with small cell antennas with the capacity to carry telephone calls and provide high-speed internet access over a 200-foot radius. At a public meeting, carriers questioned the manhole option because of problems with moisture, which, however, does not appear to pose a technical problem in the UK.[5] The Design Guidelines should allow, and require this manhole cover design wherever possible. While there may be technical shortcomings with the manhole cover design today, it should be included as an option in the Version 2 Design Guidelines for possible future application.

4. Require hotelling (co-location) where technically feasible. Hotelling reduces clutter, is used in other cities, and Crown Castle will be hotelling two carriers. We urge the PSC to adopt the Nashville, TN rules requiring hotelling for every small cell installation where it is technically feasible. Nashville ordinance BL 2016-415 (16 Nov. 2016).

5. Require that all small cell infrastructure be shrouded. DDOT has 330 wood poles on streets, and an additional 481 wood poles on alleys, where small cell infrastructure might be installed (See Map 2). Exposed wires are permitted. 5.3.3. District residents are entitled to the most attractive installation possible and for this reason, all equipment must be fully shrouded, including installations on wood poles. There is no reason to allow unsightly wires on wood poles.[6] See Figure 2. There is a major equity issue here. All neighborhoods are not the same - for example, wooden poles are mostly in alleys west of river, but are on streets east of the river. DDOT, by strengthening its Design Guidelines and implementation, must insure that small cell infrastructure on wood poles will be installed neatly, and neatly maintained.

Small cell appearance and design standards - independent design process

[3] Sprint's application to Old Georgetown Board to install 5G equipment at 3270 M Street, NW, OGB 19-063, was approved on the consent calendar on 7 Feb. 2019. Erik G. Larsson, "Massive MIMO for 5G," (https://futurenetworks.ieee.org/tech-focus/march-2017/massive-mimo-for-5g.

[4] At least one source claims to have small cell sites in the Washington, DC area. www.smallcellsite.com.

[5] "Vodafone UK uses manhole covers to boost mobile network's reach." . https://tarificawirelesstoday.blogspot.com/2018/12/vodafone-uk-uses-manhole-covers-to.html. See also, https://www.fiercewireless.com/wireless/small-cells-still-plenty-potential-despite-big-challenges.

[6] Marcus Spectrum Solutions, FCC Dockets 17-79 and 17-84 (July 17, 2018). See also, Michael J. Marcus, "The Growing Visual Impact of Wireless Antennas in the Urban Landscape: Strategies for Coexistence," *IEEE Wireless Communications*, Feb. 2018, 4-5. Marcus Spectrum Solutions LLC 's comments show a "rats nest" small cell infrastructure ,such as this photograph of a nearby installation on MacArthur Boulevard in Potomac, MD

Good design is critical. We urge the PSC to consult with NCPC and CFA and to have an open public process with opportunities for citizens to participate. 2.4, 5.3.1. No public space permits for small cell infrastructure should be granted until after this process is completed.

OCTO plans to add its wireless infrastructure to many poles with small cell infrastructure. OCTO showed its antenna at community meetings; it's ugly and large. The design needs to be improved, and for this reason the design process in 2.4 must include OCTO's antenna.

At-grade cabinets and below-grade vaults are allowed in many locations, but "additional guidelines would have to be developed." Chart 1. The potential impacts of these cabinets, which can be up to 28 cubic feet, are immense. These guidelines should be part of the independent design process and need to be developed through an public process with opportunity for citizens to participate, and finalized before any public space permits are issued for small cell wireless.

Other changes needed in the Design Guidelines

Protect all neighborhoods. All viewsheds in all neighborhoods deserve protection from clutter, not just "the most important view sheds and vistas" in the L'Enfant Plan and historic districts. 3.1.

Coverage maps. Carriers should be required to provide coverage maps and network density mapping to the PSC, as a tool for the PSC to plan for reasonable, foreseeable and predicable site locations in our neighborhoods and on our walkways. These maps should be updated annually and posted on DDOT's website.

Street trees need additional protection

The Version 2 Design Guidelines enhance the protections only for existing street trees, specifying a protected zone of at least 15 feet, prohibiting damage to trees during installation of small cell infrastructure, requiring permits (presumably from the Urban Forest Administration (UFA), which should be clarified) and restricting pruning. 8.4.

These protections need to be strengthened in two ways:

1. The minimum 15-foot distance in 8.4 must be measured from the tree's mature diameter. When a permit to install small cell infrastructure is filed, a particular street tree may have already reached its mature diameter, and the 15-foot safety zone can be accurately measured. However, at the time of filing an application, many street trees have not yet grown to their mature diameter, and to protect the tree throughout its life, the 15 feet must be measured from it projected mature diameter. For example, the approximately 7,000 street trees that DDOT plants each year are slender 2-inch caliper trees. DDOT knows the species and condition of every street tree, has data on each specie's mature diameter.[7]

2. The protections for existing street trees should also be extended to every one of UFA's potential street tree locations. Because UFA plants approximately 7,000 street trees annualyy, this means that at any given time there are 7,000 empty tree boxes unprotected from small cell installation.[8] All potential street tree locations should be protected. For this reason, DDOT's street tree maps on its website should be included in the Design Guidelines, to clarify all potential street tree locations where small cell

[7] https://dcgis.maps.arcgis.com/apps/MapJournal/index.html?appid=0336fad670cb42ba8b894d57a827ecc3&webmap=c11b41d656894147a35e059a9d0774ff. Cyclomedia data and LIDAR point cloud data.

[8] https://ddot.dc.gov/node/509082

technology installations will be subject to the 15-foot and other limits. See Figure 3 showing existing and potential street tree locations in downtown Washington.

Procedure for processing public space permits

ANCs should be given notice and opportunity to comment on all applications for small cell public space permits, not just those applications deemed inconsistent (by an unknown actor) with the Version 2 Design Guidelines. ANC review can be coordinated within the timelines for processing applications for public space permits.

Questions on Design Guidelines

Questions on process:

- Public space permit process for small cell infrastructure: What entity decides whether an application adheres to the Version 2 of the Design Guidelines? DDOT's Public Space Regulation Division? PSC? Is this decision appealable? If so, who can appeal? This is a key decision block because the Guidelines state that only "applications not consistent with these guidelines" will be reviewed by the ANCs, CPC, CFA, and HPO, as appropriate. 4.2.1, 4.2.2

- Protecting vistas. Who decides whether a small cell installation would obstruct contributing vistas and views in the L'Enfant plan area or standalone poles that block views to buildings windows or detract from the building's architectural property? NCPC and CFA should have input to decide these questions. 6.2.2, 6.3.3.1.4.

- OP3. What role, if any, does the Office of Public-Private Partnerships have in decisions on applications for installing small cell infrastructure or any subsequent monitoring?

The Version 2 Design Guidelines do not apply to areas under "Federal or private ownership." 5.1 What is private ownership? Churches, cemeteries, nonprofit organizations, universities, office and apartment building owners, homeowners? How can an Amenity Zone be in private ownership?

Where is Map 3 (Federal Property Map)?

Where is Map X (Federal park lands owned by the U.S. Government, Avenues and streets on the Federal Core Interest Area Map, Federal Reservation (Federal park lands owned by the U.S. Government)? Glossary, 5.2.

Amendments needed to the MLA

The MLA can be amended. MLA section 19. All carriers must enter into an amendment to the MLA, incorporating all of the following provisions:

- Comply with Design Guidelines. All carriers must agree to comply with the final Design Guidelines. There must be significant penalties for failure to correct noncompliance after notice to a carrier. (At the Small Cell Town hall, there was an impression, although not an express statement, that carriers might refuse to comply with the Design Guidelines.)

- Amount, scope, and duration of performance bond must be increased. The performance bond in the MLA (section 18) must be increased to the greater of $250,000 or 35% of the pole attachment fee, cover all damage to District property, including street trees, pay for removal of abandoned small cell equipment if not promptly removed by the carrier, and remain in effect for

five years after termination of the MLA. The MLA provides for a bond (the higher of $50,000 or 35% of the pole attachment fee) to remove small cell equipment and restore poles to prior condition. MLA 18, "Performance Bond." The MLA's duration is one year after the term (10 years plus two possible renewal periods, five years each. With an expected 2,500 or more poles, DDOT may not find all the abandoned small cell equipment in time; $50,000 is too low, and the bond does not cover other damage, including destroyed/damaged street trees.

- Carriers must pay for all remediation needed before and after small cell installation *Fierce Wireless* notes:

> So while hanging a small cell on, say, a light pole sounds simple, it can be a logistical nightmare. Connecting the pole to both the power grid and the network could require installers to dig up streets and sidewalks, which (again) requires permitting and perhaps other city approvals.[9]

Thank you for considering our comments.

Stephen A. Hansen, Chair

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[9] Colin Gibbs, "Small cells: Still plenty of potential despite big challenges," Sept. 1, 2016.

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Figure 1. Illustration of Massive MIMO, which "....use(s) large antenna arrays at base stations to simultaneously serve many autonomous terminals ..." . Erik G. Larsson, "Massive MIMO for 5G," https://futurenetworks.ieee.org/tech-focus/march-2017/massive-mimo-for-5g)

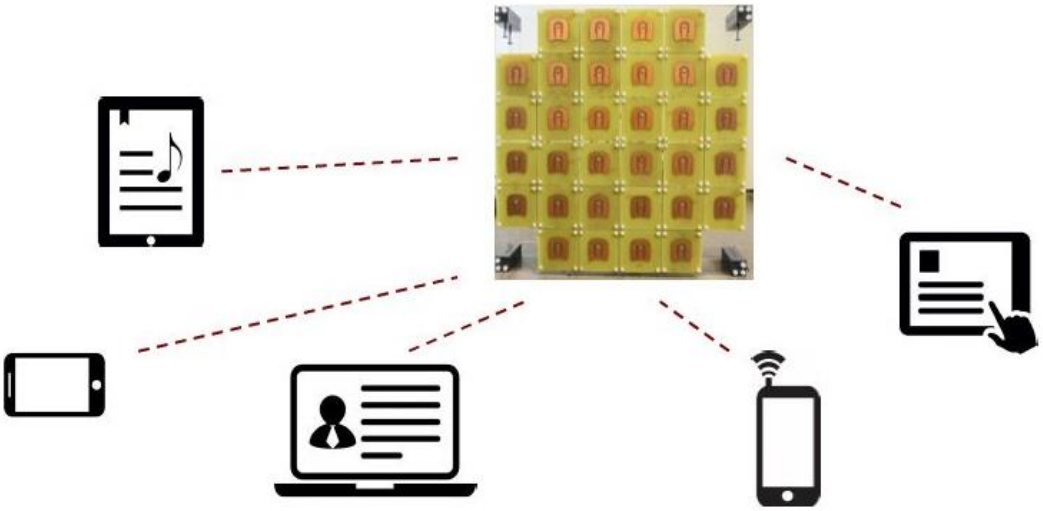

Figure 2 . Marcus Spectrum Solutions, FCC Dockets 17-79 and 17-84 (July 17, 2018) showing small cell installation in Potomac, Md. See also, Michael J. Marcus, "The Growing Visual Impact of Wireless Antennas in the Urban Landscape: Strategies for Coexistence," *IEEE Wireless Communications*, Feb. 2018, 4-5.

Figure 3. DDOT map of a section of downtown Washington, showing existing street tree locations (in green) and potential locations (in blue). Arrow points to a potential street tree location. www.ddot.dc.gov