Executive Director's Recommendation

Commission Meeting: November 1, 2018

PROJECT
Small Cell Infrastructure Guidelines
Washington, DC

SUBMITTED BY
District of Columbia Department of Transportation

REVIEW AUTHORITY
Review of Plans and Projects for Consistency with the Comprehensive Plan
per 40 U.S.C. § 8711(e)(2)

NCPC FILE NUMBER
7994

NCPC MAP FILE NUMBER
00:00(41.22)44805

APPLICANT'S REQUEST
Approval of comments on draft guidelines

PROPOSED ACTION
Approve comments on draft guidelines

ACTION ITEM TYPE
Staff Presentation

PROJECT SUMMARY

The District Department of Transportation (DDOT) has submitted draft Small Cell Infrastructure Guidelines for review and comment. As the lead agency and liaison with the cellular providers, DDOT is working with the District of Columbia Office of Planning, the State Historic Preservation Office, the U.S. Commission of Fine Arts, and NCPC to develop guidelines that will inform the placement of small cell infrastructure within the nation's capital.

With a growing demand for wireless technology across the country, cellular companies are working to relieve the congestion on existing networks. Cellular providers (or carriers) have begun deploying small-cell infrastructure, a new lower-powered antenna technology, to reduce data traffic load on roof mounted equipment and larger cell towers. This new technology requires significant infrastructure that will potentially affect the aesthetics and function of public streets and spaces. There are multiple applications for this infrastructure, such as attaching to existing streetlights and utility poles, or employing standalone pole installations.

Cities across the nation are attempting to balance the need to accommodate the increase in cellular demand with their community's public space character and function. DDOT has entered into a master license agreement with several cellular companies that are planning to deploy this small cell infrastructure throughout the District. Therefore, the design and placement of this infrastructure is critically important, and the guidelines are intended to address this issue. The federal and cultural resources of the National Mall and its environs are inherently unique in the District due to the unpreceded number of monumental Beaux Arts buildings, historic Washington Globe and Twin-20 light fixtures, landscaped building yards, terminating viewsheds, perimeter security, and tree coverage. As such, staff completed a study of the area to understand how the draft guidelines might accommodate new technology and innovation while preserving the defining characteristics of the nation's most important public realm and buildings.

KEY INFORMATION

- Small cell technology consists of antennas and related equipment that can be placed on structures such as streetlights, the sides of buildings, or poles. Small cell equipment comes in various sizes, and are essential for transmitting data to and from a wireless device.
- DDOT has entered into a master license agreement with several cellular companies (carriers) that are planning to deploy small cell infrastructure throughout the District.
- Small cell antennas have a limited signal range, and each provider may be installing hundreds of antennas and related equipment throughout the District to meet their independent coverage needs.
- The carriers have indicated they would like to install approximately 2,700 facilities over the next five years.
- According to the carriers, the density of antennas correlates with the intensity of use for a given area.
- DDOT has worked with NCPC and other District and federal agencies to develop draft guidelines that address various aspects of the placement and design of small cell facilities.
- The draft guidelines currently restrict placement of small cell facilities adjacent to federal buildings. Small cell facilities are also restricted adjacent to National Park Service reservations.
- The guidelines would not apply to small cell facilities proposed on federal property. Any proposed facilities on federal land within the District of Columbia would require submission by the land-holding federal agency to NCPC for review and approval.
- The District of Columbia Public Space Committee will ultimately adopt the guidelines that will be used to evaluate permit applications for small cell installation in District rights-of-way and on District assets, such as light poles.
- Small cell facilities are generally located on poles around 30 feet in height. This height is necessary to accommodate signal transmission along a street corridor. For comparison purposes, Washington Globe light poles range from 14 to 18 feet tall. Twin-20's are currently the tallest fixtures at approximately 22 feet tall, roughly two-thirds the height of a typical small cell pole. Antenna equipment can range from five to seven feet in height, and can be attached to the top or middle of the pole. Electrical cabinets and other support equipment can range from four to five feet in height and around three feet in width. Depending on the design and provider, the cabinets can be integrated into the pole base, attached to the middle or top of the pole, installed as standalone boxes near the pole, or located underground in a vault.
- Installations are typically carrier-specific for each pole. However, some poles can be shared through "hoteling" where a third party will accommodate several providers together.

RECOMMENDATION

The Commission:

Appreciates the close collaboration between the District Department of Transportation (DDOT) and District and federal agencies in developing the draft guidelines.

Recognizes the growing demand for wireless technology and more importantly, that the need to relieve congestion on existing networks is essential for people living and working in Washington, DC, including residents, visitors and the federal workforce.

Finds small cell facility deployment requires significant infrastructure that will affect the aesthetic and functional aspects of the public realm.

Notes that as the federal planning agency for the nation's capital, NCPC has a focused interest on preserving and enhancing the form, character and experience of the nation's capital, particularly within the historic L'Enfant City and around the significant concentration of federal interests and prominent national resources found in the core of Washington, DC.

Notes that NCPC has not focused its analysis on other parts of the District where other issues may be of interest to various stakeholders.

Finds that the federal and cultural resources of the National Mall and its environs are inherently unique in the District due to the unpreceded number of monumental Beaux Arts buildings, historic Washington Globe and Twin-20 light fixtures, landscaped building yards, terminating viewsheds, perimeter security, and tree coverage.

Finds that these unique circumstances will affect the placement and coverage of small cell facilities in this area in ways that are not applicable to other parts of the District.

Finds the fundamental challenge is how to create small cell guidelines for this unique area around the National Mall that allow for modern technology and innovation while preserving the defining characteristics of the nation's most important public realm and buildings.

Notes the draft guidelines should be evaluated based on both urban design and network coverage, which are interrelated, and ultimately allow for network coverage in way that minimizes impacts to the public realm in the symbolic heart of the nation.

Evaluation of Study Area around the National Mall and its Environs

Notes the draft guidelines restrict the placement of small cell facilities adjacent to federal properties and National Park Service reservations.

Supports the provision limiting small cell facilities adjacent to National Park Service reservations as the facilities will likely be more visible and intrusive adjacent to park space as opposed to a building setting.

Finds the draft guidelines could result in gaps in coverage in areas around the Federal Triangle, Northwest Rectangle and Southwest Rectangle primarily due to the limitation of facilities located adjacent to federal properties.

Finds that if the draft guidelines allowed small cell facilities adjacent to federal properties in the study area, they would allow 158 standalone poles and and 32 facilities attached to existing pendant poles with cobra heads, largely throughout the Federal Triangle, Northwest Rectangle and Southwest Rectangle.

Advises that if it is determined that small cell facilities are needed in this specific area, the guidelines will need to address a number of unique issues related to the character and function of the public realm near the National Mall and its environs, including: facility placement and spacing; building entrances and architecture; cabinetry and related equipment; and pole design and attachments.

Therefore, for the area around the National Mall and its environs, identified as the study area, the Commission:

Facility Placement and Spacing

Supports restricting the placement of small cell facilities on Washington Globe and Twin-20 light poles due to their purposeful design, historic association and presence throughout the monumental core.

Finds there are relatively few existing cobra light poles in the study area for attaching small cell facilities, and as a result, new standalone poles would likely be necessary to satisfy coverage needs.

Finds that new standalone poles tend to cluster along certain block faces, while other block faces may have fewer small cell facilities due to a combination of the various criteria included in the draft guidelines.

Notes that some important corridors, such as Constitution and Independence Avenues adjacent to Smithsonian museums and the National Mall, could have a number of new standalone poles. The introduction of new poles, in conjunction with existing streetscape elements, could contribute to additional visual clutter in front of buildings and within the streetscape. The size, number and repetitive nature of standalone poles may dominate the streetscape and be quite noticeable.

Finds that there is insufficient information available to determine the relationship between the carriers' needs in facility placement and coverage, and the spacing permitted under the guidelines.

Requests that DDOT work with the carriers to provide the following information to staff to help inform their analysis and ultimately the Commission's recommendations for the final guidelines:

- A composite map of all the desired locations of the small cell providers to understand the total need for facilities and the areas of highest demand within the study area.
- An understanding as to why there is no requirement for multiple providers to share infrastructure (hoteling) and whether this could occur if the number of allowable poles were reduced.
- Consideration of a phased approach whereby the first issuance of the guidelines allows a more conservative number of poles (i.e. instead of allowing nine new facilities on one block of 14th Street, NW, the number is reduced). Then based on demand over the next couple of years, the guidelines can be reassessed.

Building Entrances and Architecture

Finds if the guidelines allowed standalone poles adjacent to federal properties, some could be placed in front of entrances to significant buildings, such as the National Archives, Department of Commerce, and Portrait Gallery.

Finds the placement of standalone poles in front of entrances to important civic and cultural facilities is not appropriate due to their architectural or visual prominence and need to accommodate pedestrian access.

Cabinetry and Related Equipment

Finds that above-grade cabinetry and other related equipment would unnecessarily distract from the views of the many significant prominent and historic federal buildings and viewsheds in and around the National Mall.

Finds that new poles and at-grade cabinetry has the potential to impact pedestrian circulation and access.

Notes that the providers have expressed concerns about the cost and feasibility of vaulting equipment.

Supports underground cabinetry and other related equipment to the maximum extent possible.

Pole Design and Attachments

Notes each carrier may have a unique antenna style and configuration, including both top-mounted and collar installations.

Finds that installations of varying designs on multiple poles within a block face may look disjointed or cluttered, particularly when inserted in cohesively-designed streetscapes, such as those around federal buildings.

Supports the comment of the U.S. Commission of Fine Arts at their September 27, 2018 meeting, when they "advised the development of an elegant and holistic design typology for the small-cell installations…"

Requests that DDOT work with the U.S. Commission of Fine Arts and NCPC to convene a meeting with the carriers and industrial designers to develop a unified design typology for poles and related equipment.

Advises that given the unique setting of the National Mall and its environs, and the concentration of federal facilities, memorials and monuments, a detailed map of preferred standalone pole locations will be necessary to reconcile coverage needs and impacts to the public realm, if it is determined additional coverage is needed for the study area. Further, a specific location map will provide predictability and certainty for providers, and will help streamline the process for both carriers and DDOT.

Directs staff to prepare a detailed map of preferred standalone pole locations, taking into account the regulating criteria of the draft guidelines, coverage needs, and the desire to protect the nation's most important public spaces. The map will be reviewed by Commission on December 6, 2018, and transmitted to DDOT for consideration in the final guidelines.

PROJECT REVIEW TIMELINE

Previous actions	**July 2018** – Information Presentation
Remaining actions (anticipated)	- Preparation of placement map - Review of final guidelines

PROJECT ANALYSIS

Executive Summary

DDOT, in collaboration with a number of District and Federal agencies, has developed draft Small Cell Guidelines that will direct the design and placement of small cell infrastructure throughout the District of Columbia. Staff recommends the **Commission express their appreciation for the close collaboration between the District Department of Transportation (DDOT) and District and federal agencies in developing the draft guidelines.**

The draft guidelines have been reviewed by the U.S. Commission of Fine Arts and by the Public Space Committee of the District of Columbia. DDOT requests that NCPC provide comments on the draft guidelines to help inform revisions and updates, in conjunction with feedback from interested stakeholders and the public. The final guidelines will be adopted by the District Public Space Committee, and will be used to approve small cell infrastructure installations in public rights-of-way. The guidelines will not apply to federal lands which are subject to review and approval by NCPC.

Analysis

Balancing the need to accommodate increasing cellular demand while preserving public space character and function is critically important, as is the need to design and place the proposed infrastructure in an appropriate way. This is especially true in Washington, DC, the nation's capital, where the public spaces, both streets and reservations, are defining elements of the city. As the federal planning agency for the nation's capital, NCPC has a focused interest on preserving and enhancing the form, character and experience of the nation's capital, particularly within the historic L'Enfant City and around the significant concentration of federal interests and prominent national resources found in the core of Washington, DC. These include the views and setting of the U.S. Capitol, White House and National Mall, nationally significant civic spaces and institutions, national memorials and parks, and those streets, avenues and reservations that link these elements.

NCPC staff recognize the growing demand for wireless technology, and more importantly, that the need to relieve congestion on existing networks is essential for people living and working in Washington, DC, as including residents, visitors and the federal workforce. However, the installation of small cell infrastructure will affect the aesthetic and functional aspects of the public spaces we experience every day. There are multiple applications for this infrastructure, such as attaching to existing streetlights or utility poles, integrating the equipment into some types of street furniture, employing standalone pole installations and possibly above ground equipment cabinets. There are also multiple providers, who need to install such infrastructure, increasing the overall demand on public spaces.

Study Area - Federal Interest around the National Mall and its Environs

Given this context, over the past month, NCPC staff undertook an evaluation of the Small Cell Design Guidelines to understand potential impacts to the federal interest. Staff selected a study area that focuses on the area around the National Mall and those areas with the highest concentration of federal facilities and other areas of national importance, including museums, memorials and open spaces. The study area also includes a number of important streets that provide critical views and vistas to and between landmarks, such as the White House and U.S. Capitol.

This area is inherently unique in the District due to the unpreceded number of monumental Beaux Arts buildings, historic Washington Globe and Twin-20 light fixtures, landscaped building yards, terminating viewsheds, perimeter security, and tree coverage. These unique circumstances will affect the placement and coverage of small cell facilities in the study in ways that are not applicable

to other parts of the District. As such, the fundamental challenge is how to create small cell guidelines for this unique area around the National Mall that allow for modern technology and innovation while preserving the defining characteristics of the nation's most important public realm and buildings. The draft guidelines should be evaluated based on both urban design and network coverage, which are interrelated, and ultimately allow for network coverage in a way that minimizes impacts to the public realm in the symbolic heart of the nation.

Evaluation of Study Area

The study area, shown in Map 1, focuses on the area of federal interest around the National Mall and those areas with the highest concentration of federal facilities and other areas of national importance, including museums, memorials and open spaces. The study area also includes a number of important streets that provide critical views and vistas to and between landmarks, such as the White House and U.S. Capitol. Map 2 applies the draft guidelines to the study area of Map 1. The sequence of steps that NCPC staff used (including field studies and GIS analysis) to map the draft guidelines are described in Appendix A. A summary of the draft guidelines regulating criteria that staff used to determine the allowable locations of small cell infrastructure is also described in Appendix A.

As DDOT has recognized with the protection of federal buildings and reservations in the draft guidelines, the study area in the attached map is inherently unique in the District. Every aspect of the public realm is purposely planned to reflect its role as the seat of the nation's capital, which reflects its national importance. Staff notes that this might result in areas without enough small cell coverage based upon statements by providers indicating they need increased coverage downtown due to demand.

To better understand the potential implications of the draft guidelines, staff first evaluated the guidelines as currently written. Map 2 shows that analysis, and indicates that there are possible coverage gaps around the National Mall, including the Federal Triangle, portions of the Northwest Rectangle, as well as the Southwest Rectangle. This is largely because the draft guidelines do not allow small cell infrastructure adjacent to federal properties (buildings). Small cell facilities are also restricted adjacent to National Park Service reservations by a separate provision, and staff recommends the **Commission support this provision as the facilities will likely be more visible and intrusive adjacent to park space as opposed to a building setting.**

Staff then evaluated a scenario that applied the draft guidelines to areas adjacent to federal properties in the study area in the event it is determined these areas are in need of additional coverage. Map 3 illustrates this scenario and shows that approximately 158 new standalone poles and 32 facilities on existing pendant poles with cobra heads would be allowed, largely in the Federal Triangle, Northwest Rectangle, and Southwest Rectangle. In addition to staff's analysis of the number of allowable small cell facilities in this scenario, staff also completed a visualization analysis to assess the overall impacts to the character and function of the streetscape and public realm. The attached visualization analysis includes before and after renderings for 11 locations within the study area. Overall it shows that applying the current draft of the guidelines to areas adjacent to federal

properties raises several concerns with regard to the streetscape and public realm, which are discussed in greater detail below.

Staff therefore recommends the **Commission advise that if it is determined that small cell facilities are needed in this specific area, the guidelines will need to address a number of unique issues related to the character and function of the public realm near the National Mall and its environs, including: facility placement and spacing; building entrances and architecture; cabinetry and related equipment; and pole design and attachments.** Staff's analysis of these issues and findings for the study area follows:

- *Facility Placement and Spacing* – Small cell facilities are not allowed on Washington Globe or Twin-20 light fixtures, the predominant light pole in the study area. Staff recommends the **Commission support this guideline, given the purposeful design, historic association and presence of these fixtures throughout the monumental core.** Given this, and the fact that there are very few existing cobra light poles in the study area for attaching small cell facilities, new standalone poles would likely be necessary to satisfy coverage needs.

  Staff analysis indicates that new standalone poles tend to cluster along certain block faces, while other block faces may have fewer facilities due to a combination of the various criteria included in the draft guidelines. Some important corridors, such as Constitution and Independence Avenues adjacent to Smithsonian museums and the National Mall, could have a number of new standalone poles. The introduction of new poles, in conjunction with existing streetscape elements, could contribute to additional visual clutter in front of buildings and within the streetscape. The size, number and repetitive nature of standalone poles may dominate the streetscape and be quite noticeable. New poles may also feel intrusive to pedestrians and can appear quite relentless when interspersed with existing light poles. This may be particularly true in the study area due to the frequency of highly-designed streetscapes, perimeter security and other features that occupy the public spaces around most federal buildings.

  Poles could be placed along streetscapes within important vistas and viewsheds. As such, the draft guidelines restrict the placement of small cell facilities in medians. In general, staff finds this appropriate for center medians as they generally align with important viewsheds. Limiting the introduction of new vertical elements in these corridors is appropriate to preserve these important view.

  While analysis of the draft guideline's impact on overall network coverage is not within NCPC's purview, it is important for informing the development of guidelines that provide adequate network coverage while minimizing urban design impacts to the public realm. In particular, there is insufficient information available to determine the relationship between the carriers' needs in facility placement and coverage, and the spacing permitted under the guidelines. As such, staff recommends the **Commission request that DDOT work with the carriers to provide the following information to staff to help inform their urban**

design analysis and ultimately the Commission's recommendations for the final guidelines:

- **A composite map of all the desired locations of the five small cell providers to understand the total need for facilities and the areas of highest demand within the study area.**
- **An understanding as to why there is no requirement for multiple providers to share infrastructure (hoteling) and whether this could occur if the number of allowable poles were reduced.**
- **Consideration of a phased approach whereby the first issuance of the guidelines allows a more conservative number of poles (i.e. instead of allowing nine new facilities on one block of 14th Street, NW, the number is reduced). Then based on demand over the next couple of years, the guidelines are reassessed.**

- *Building Entrances and Architecture* – If the current guidelines were revised to allow standalone poles adjacent to federal buildings, some could be placed in front of entrances to significant buildings, such as the National Archives, Department of Commerce, and Portrait Gallery. This is largely because there are no trees in areas left open to preserve views to the building entrance and to accommodate high volumes of pedestrian traffic. In general, staff finds the placement of standalone poles in front of entrances to important civic and cultural facilities is not appropriate due to their architectural or visual prominence and the need to accommodate pedestrian access. Staff also notes the guidelines may also need to address how placement might affect or relate to the architectural style or features of our important civic buildings and public spaces.

- *Cabinetry and Related Equipment* – The draft guidelines currently require cabinetry and other related equipment be undergrounded in vaults. This requirement intends to eliminate the potential visual and physical clutter associated with this equipment. Undergrounding would keep such cabinets out of the sidewalk as well, and preserve space for pedestrian movement. This is consistent with long-standing practice in Washington, DC of hiding or diminishing utilitarian infrastructure. Above-grade cabinetry would unnecessarily distract from the view of the many prominent and historic federal buildings and viewsheds in and around the National Mall. As such, staff recommends the **Commission support undergrounding cabinetry and other related equipment to the maximum extent possible.** Staff notes however, that the providers have expressed concerns about the cost and feasibility of vaulting equipment.

- *Pole Design and Attachments* – Each provider may have a unique antenna style and configuration. For example, antennae may be top-mounted or installed as a collar. Further, staff finds that installations of varying designs on multiple poles within a block face may look disjointed or cluttered, particularly when inserted in cohesively-designed streetscapes, such as those around many federal buildings. As such, staff recommends the **Commission express support for the comment made by the U.S. Commission of Fine Arts at their September 27, 2018 meeting when they "advised the development of an elegant and**

holistic design typology for the small cell installations…" Staff further recommends the **Commission request that DDOT work with the U.S. Commission of Fine Arts and NCPC to convene a meeting with the carriers and industrial designers to develop a unified design typology for poles and related equipment.**

Conclusion

The relationship of urban design and network coverage has direct implications for how the guidelines will be implemented, the impacts anticipated to the public realm, and how well they will satisfy carrier needs. Further, given the unique setting of the study area, focused around the National Mall, alternative approaches may be necessary to accommodate this new technology, while still maintaining the high-quality public realm worth of a capital city. As such, staff recommends the **Commission advise that given the unique setting of the National Mall and its environs and the concentration of federal facilities, memorials and monuments, a detailed map of the preferred standalone pole locations will be necessary to reconcile coverage needs and impacts to the public realm, if it is determined additional coverage is needed for the study area. Further, a specific location map will provide predictability and certainty for providers, and will help streamline the process for both carriers and DDOT.**

To accomplish this task, Commission should direct staff to prepare a detailed map, taking into account the regulating criteria of the draft guidelines, coverage needs, and the desire to protect the nation's most important public spaces. The map will be reviewed by Commission in December 2018, and transmitted to DDOT for consideration in the final guidelines.

CONFORMANCE TO EXISTING PLANS, POLICIES AND RELATED GUIDANCE

Comprehensive Plan for the National Capital

As noted above, the planning comments are designed to ensure the proposal meets basic goals of the Comprehensive Plan. Staff has primarily relied upon the policies related to Urban Design, Historic Preservation and Visitors and Commemoration in evaluating the proposed guidelines.

National Historic Preservation Act

NCPC does not have an independent responsibility to comply with the National Historic Preservation Act when providing comments on the draft guidelines.

National Environmental Policy Act

NCPC does not have an independent responsibility to comply with the National Environmental Policy Act when providing comments on the draft guidelines.

CONSULTATION

Coordinating Committee

The Coordinating Committee reviewed the draft guidelines at their October 10, 2018 meeting. Without objection, the Committee forwarded the proposed guidelines to the Commission with the statement that the proposal has been coordinated with all participating agencies. The participating agencies included the National Park Service, General Services Administration, District Department of Transportation; the District Office of Planning; the District Office of Energy and Environment; the Washington Metropolitan Area Transit Authority; and the District of Columbia State Historic Preservation Office (DC SHPO).

U.S. Commission of Fine Arts

The U.S. Commission of Fine Arts reviewed the draft guidelines at their July 19, 2018 and September 27, 2018 meetings. Copies of both letters are attached.

ONLINE REFERENCE

The following supporting documents for this project are available online at www.ncpc.gov:

- Draft Guidelines - https://ddot.dc.gov/page/ddot-small-cell
- Project Synopsis

Prepared by Matthew Flis
10/25/2018

ATTACHMENTS

- Powerpoint
- Study Area Maps and Visualizations
- Appendix A
- Commission of Fine Arts Letters – July 2018 and September 2018
- Public Correspondence

National Capital Planning Commission

Small Cell Infrastructure Guidelines

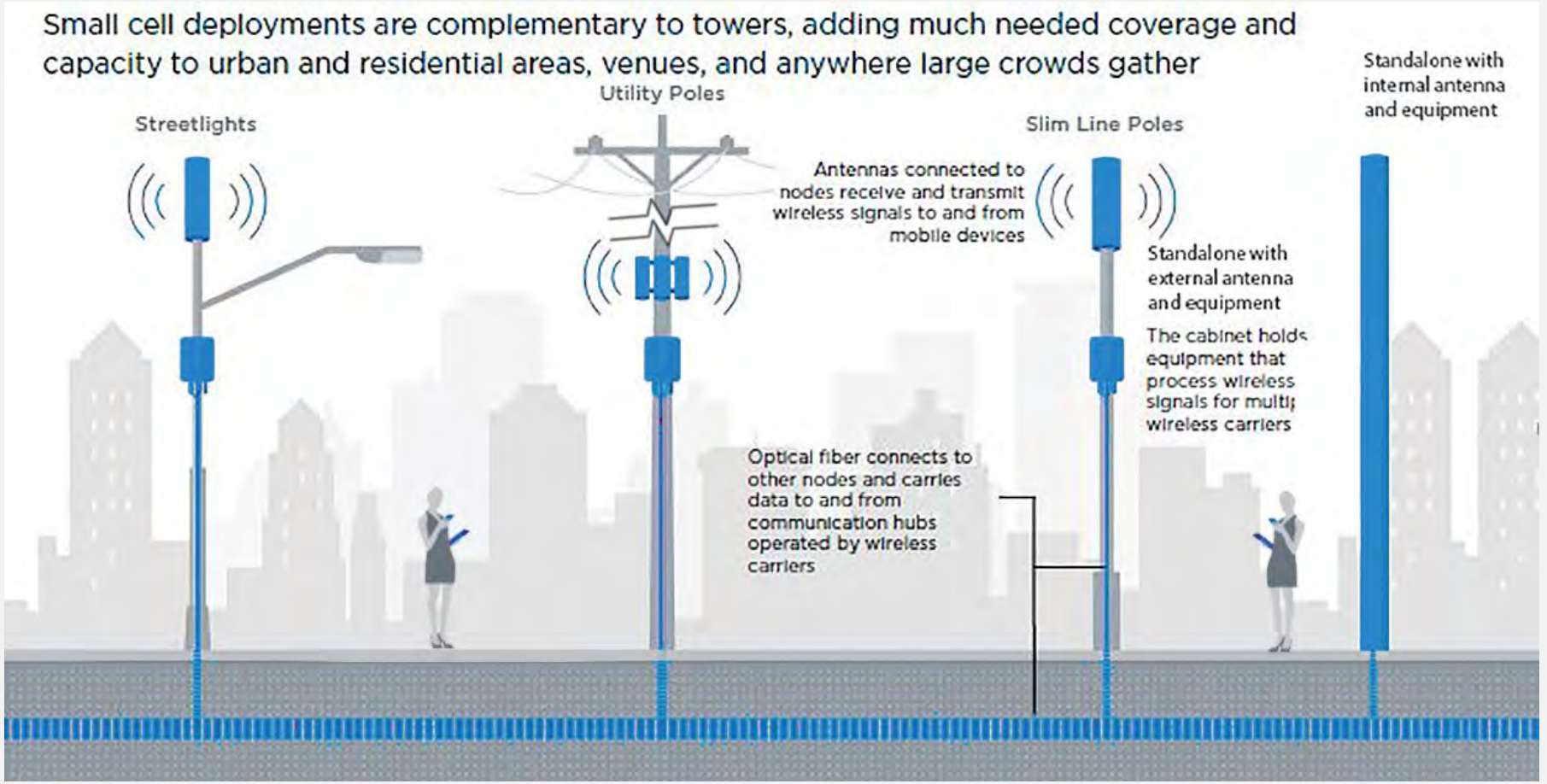
Washington, DC

Approval of Comments on Draft Guidelines

District of Columbia Department of Transportation

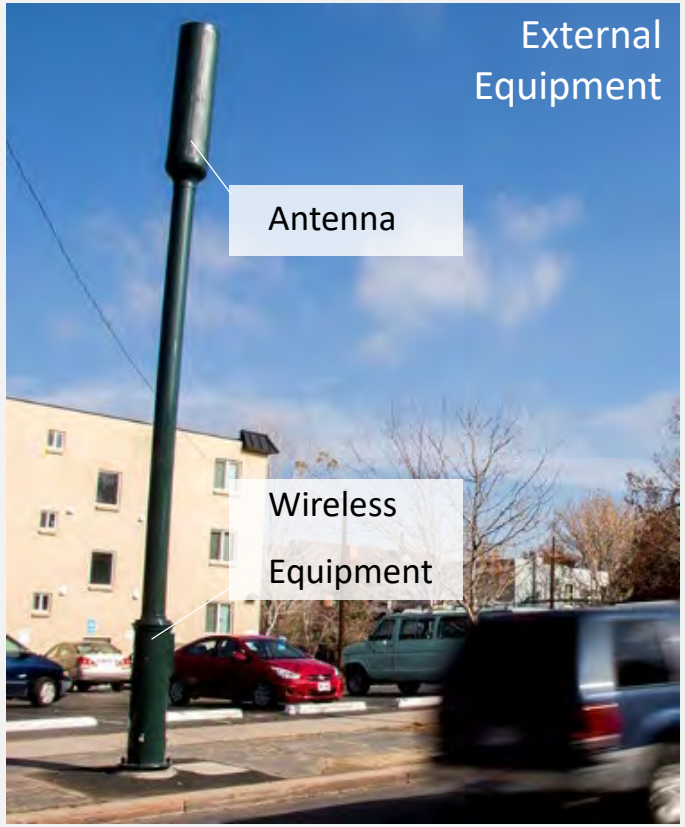
October 4, 2018 | File: 7994

What is small cell technology & what does it look like?



What does small cell technology look like?

Standalone Pole

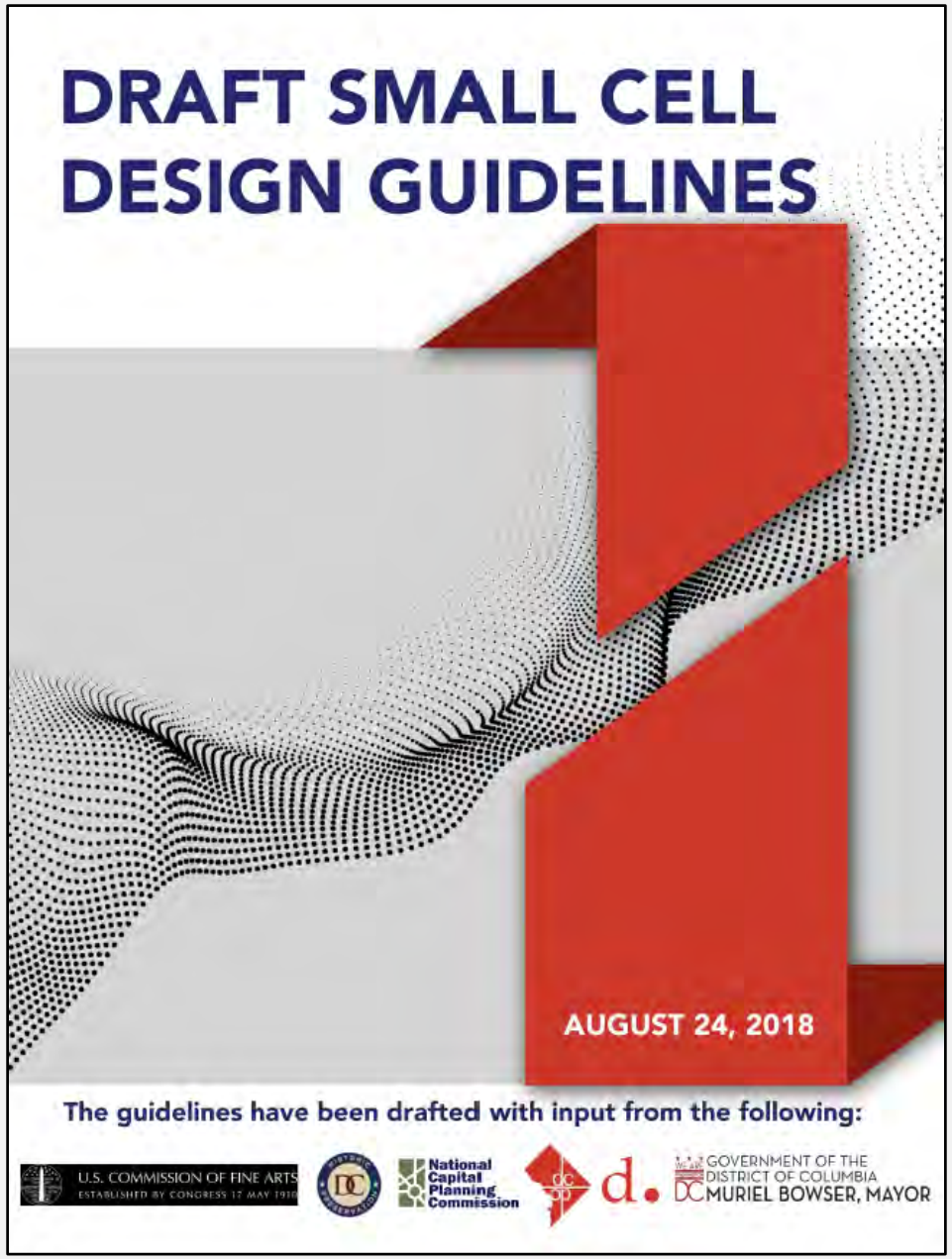


Kevin J. Beaty/Denverite

Helen H. Richardson, The Denver Post

Standalone Pole Size: 15” – 18” dia.

Up to 31’ ht. A Hand Hole is required



DRAFT SMALL CELL DESIGN GUIDELINES
8/24/2018

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Permissible Installation Types and Locations

Pole Ownership	Pole Type	Cabinetry	Monumental Core (L'Enfant Plan, Shipstead Luce Act and Old Georgetown)	Historic Districts	District other than MC/HD
District	**Existing 5A Poles**	Depends on location	Ok, w/ underground vault only		Ok, attach cabinetry to pole
District	**Existing Wood Poles**	Depends on location	Ok, w/ underground vault only		Ok, attach cabinetry to pole
District	**Existing Pendant Poles with cobraheads**	Below grade vaults[1]	Ok, w/ underground vault only		
Carrier	**New Standalone Poles: Pendant Pole or Washington Pole**	Below grade vaults[1]	Ok, w/ underground vault only		
3rd Party	**Existing Utility Pole**	Attach to pole	Un-named alley only, attach cabinetry to pole	Ok, attach cabinetry to pole	Ok, attach cabinetry to pole

Chart 1, Permissible Installation Types and Locations

[1] Applications for at grade cabinet installations may be considered on a per location basis. Any application would require review by the Public Space Committee as well as ANCs, CFA, NCPC, and SHPO as appropriate. Additional guidelines would have to be developed.

Summary of Criteria

Blockface Length Intervals[1]	Number of Small Cell Facilities Permitted per Blockface[2] outside the Monumental Core and Historic Districts	Number of Small Cell Facilities Permitted per Blockface within the Monumental Core and Historic Districts	Minimum Distance between Facilities on same Blockface[3]	Minimum Distance between Facilities on same Blockface within the Monumental Core and Historic Districts	Limit per Carrier per Block[4]
0'-150'	1	1	N/A	N/A	1
151'-300'	2	1	60'	60'	1
301'-450'	3	2	60'	75'	1
451'-600'	4	3	60'	90'	1
601'-750'	5	4	60'	105'	2
Over 750'	6	5	60'	120'	2

[1]Block lengths should be measured along the edge of curb between the edge line extended of adjacent intersecting streets.

[2]This is inclusive of all types of installations and regardless of carrier.

[3]In other words, the minimum distance between two facilities sharing the same side of the block. Distance should be measured in a linear fashion along the edge of curb between the two facilities' center points.

[4]A block is defined as two opposing blockfaces.

Chart 2, Permissible Spacing and Frequency of Installations

<u>The following provisions apply to All Poles, Existing (Combinations) and New Standalone Poles</u>

Number, spacing and carrier limit – per blockface per Chart 2 (right)

Historic Preservation: poles not allowed within twenty feet (20') of a boundary line (property line) of a D.C. Landmark, a National Historic Landmark, or a property individually listed in the National Register of Historic Places.

Federal property: Poles not allowed adjacent to a federal property.

Summary of Criteria

New standalone poles must meet the following criteria:

Alignment - align w/ existing streetlights and street trees as to maintain organization, keep out of pedestrian path

Distance from building face - Maintain a minimum of ten feet (10') from any above grade building face, including projecting windows

ADA - Do not violate applicable local or federal law, including the 1990 Americans with Disabilities Act

Trees: a minimum of fifteen feet (15’) from the tree trunk, measured from the outside of the tree

Fire safety - minimum of six feet (6’) from existing fire hydrants or buildings’ fire connections.

Light and traffic signal poles: a minimum distance of 10 feet (10’) (8.2.8.2 pg. 14)

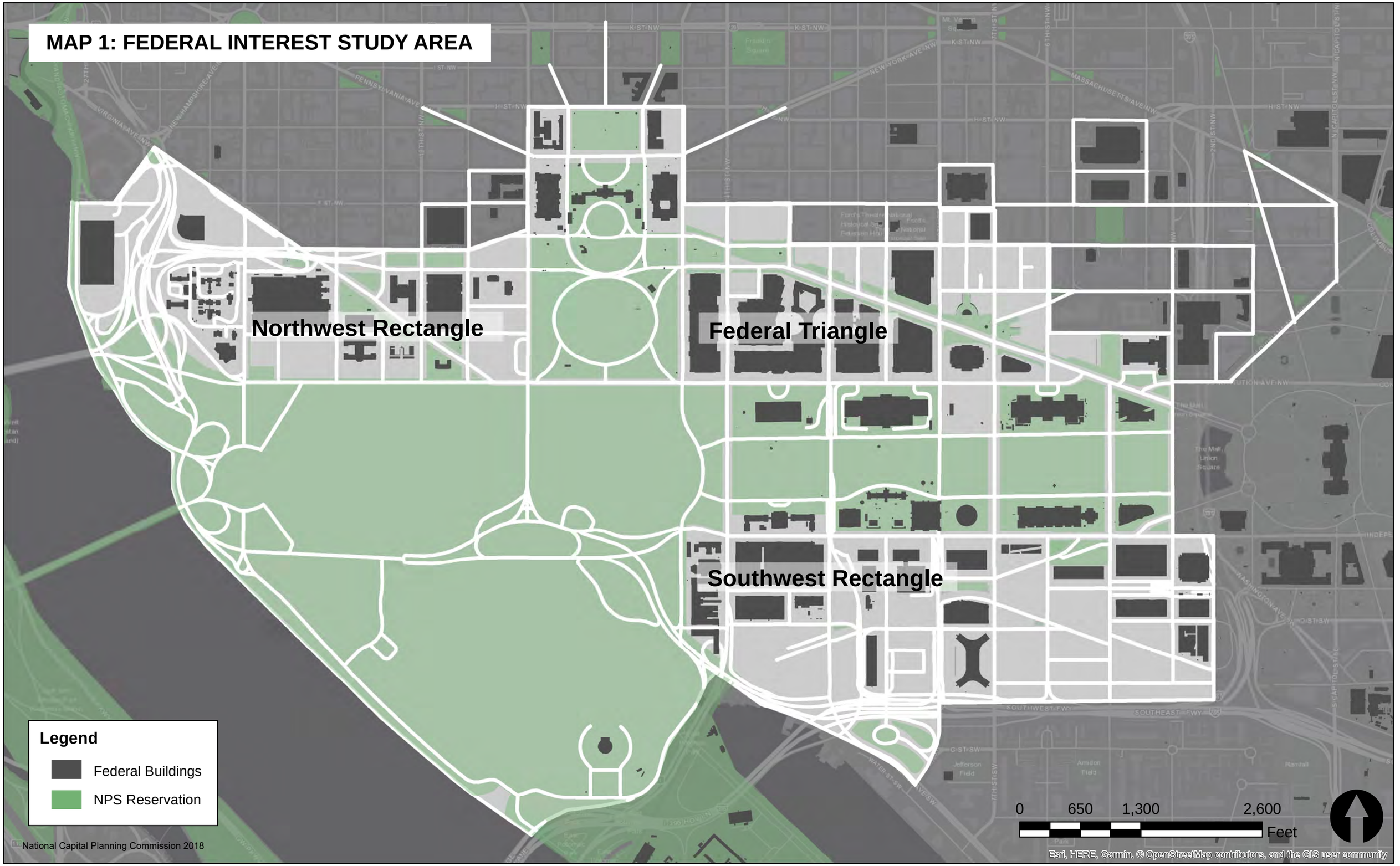
Bike racks: a minimum of 3 feet (3’) from bicycle racks and shall not impede the attachment of bicycles.

Bikeshare stations – minimum of four feet (4’) from the rear wheel of a docked bicycle rack, five feet (5’) from each end of a station, do not install to prevent solar access to the solar panel.

Clear Sight Line Distances Poles shall not be located within a 30’ x 30’ sight distance triangles at intersections, if rights-of-way are than 120’ or less. A 50’ x 50’ sight triangle required for rights-of-way greater than 120’.

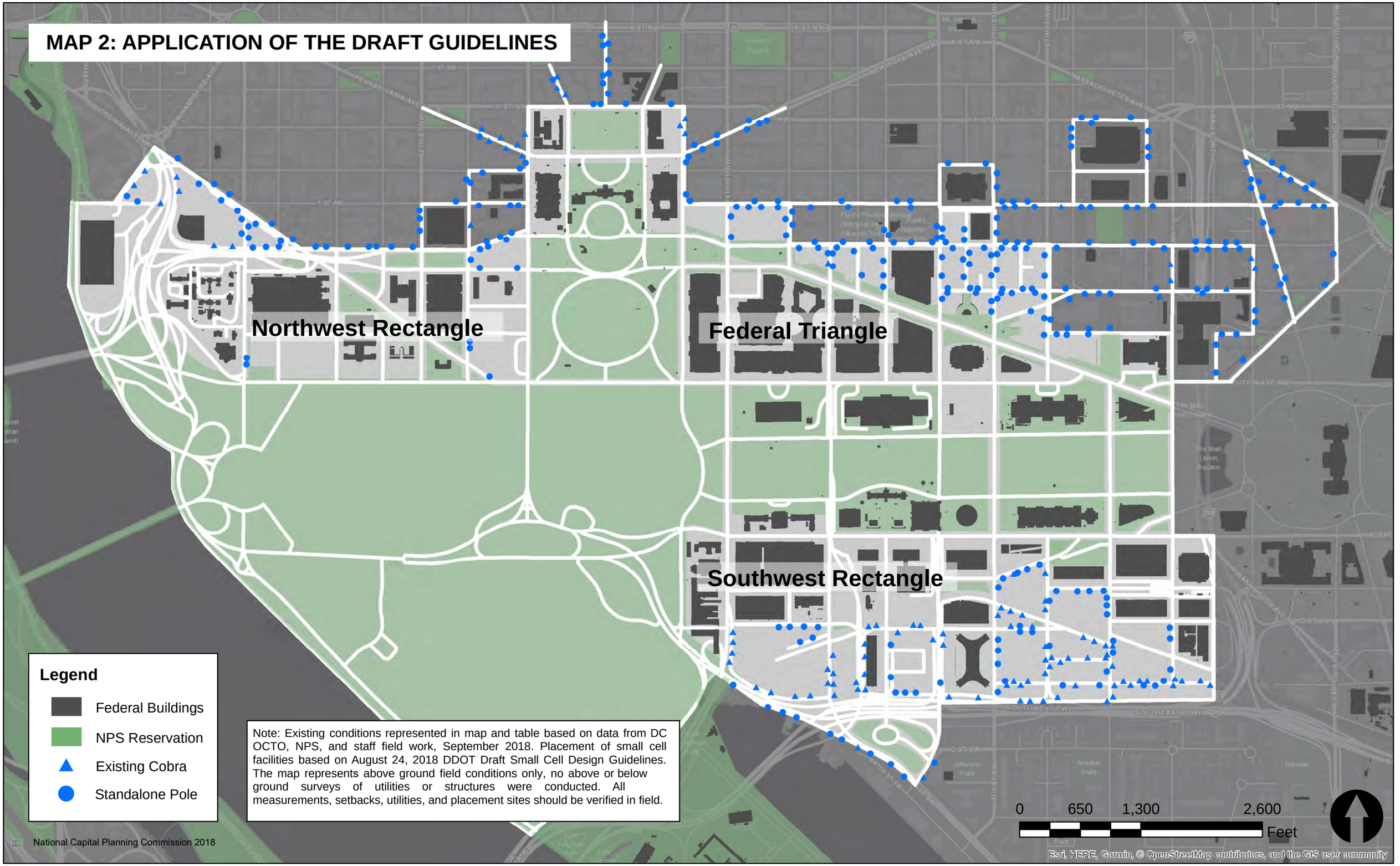
Driveways – maintain a minimum of fifteen feet (15’) as measured from the edge line of the driveway.

MAP 1: FEDERAL INTEREST STUDY AREA



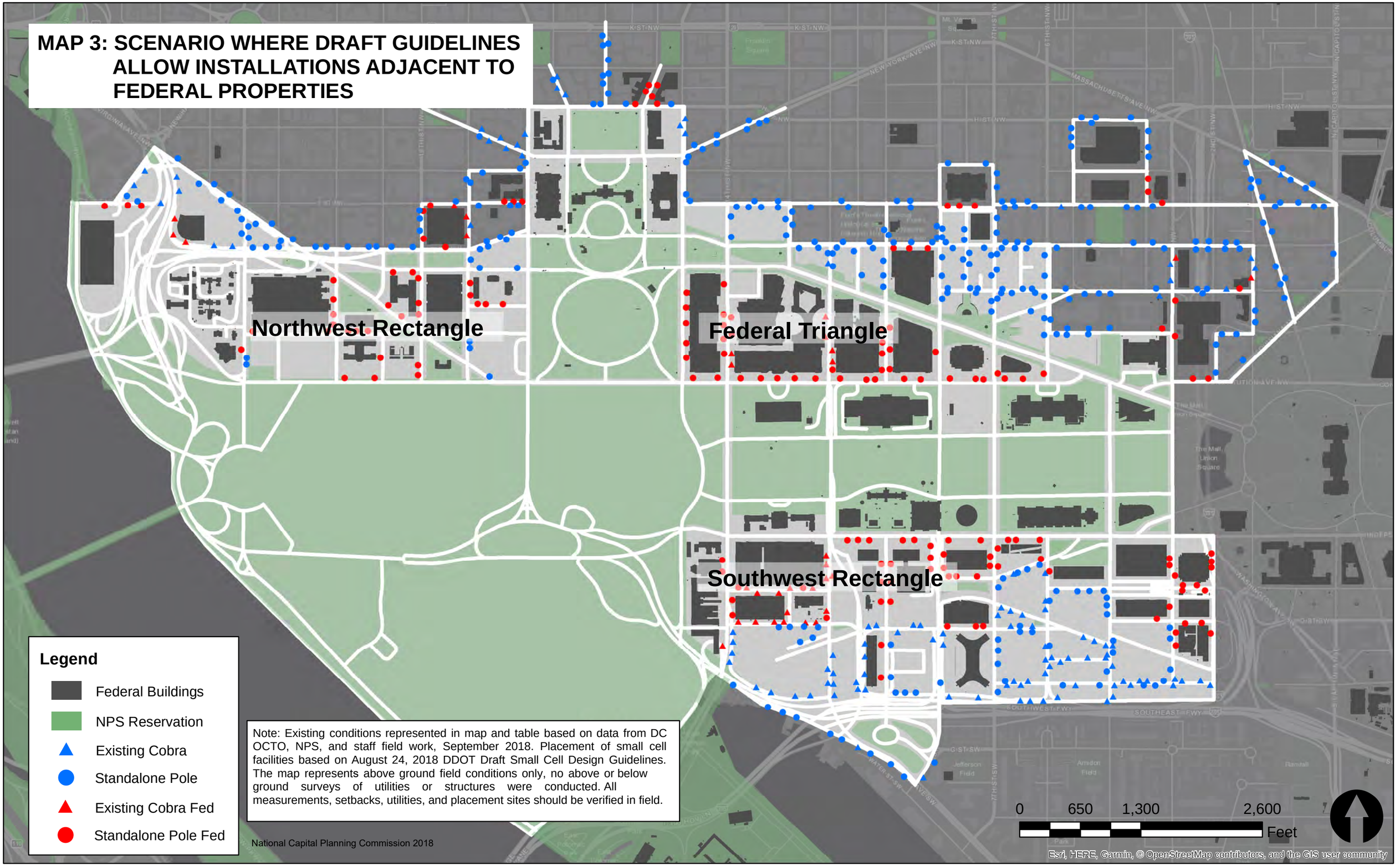
FOR DISCUSSION ONLY - October 24, 2018

MAP 2: APPLICATION OF THE DRAFT GUIDELINES



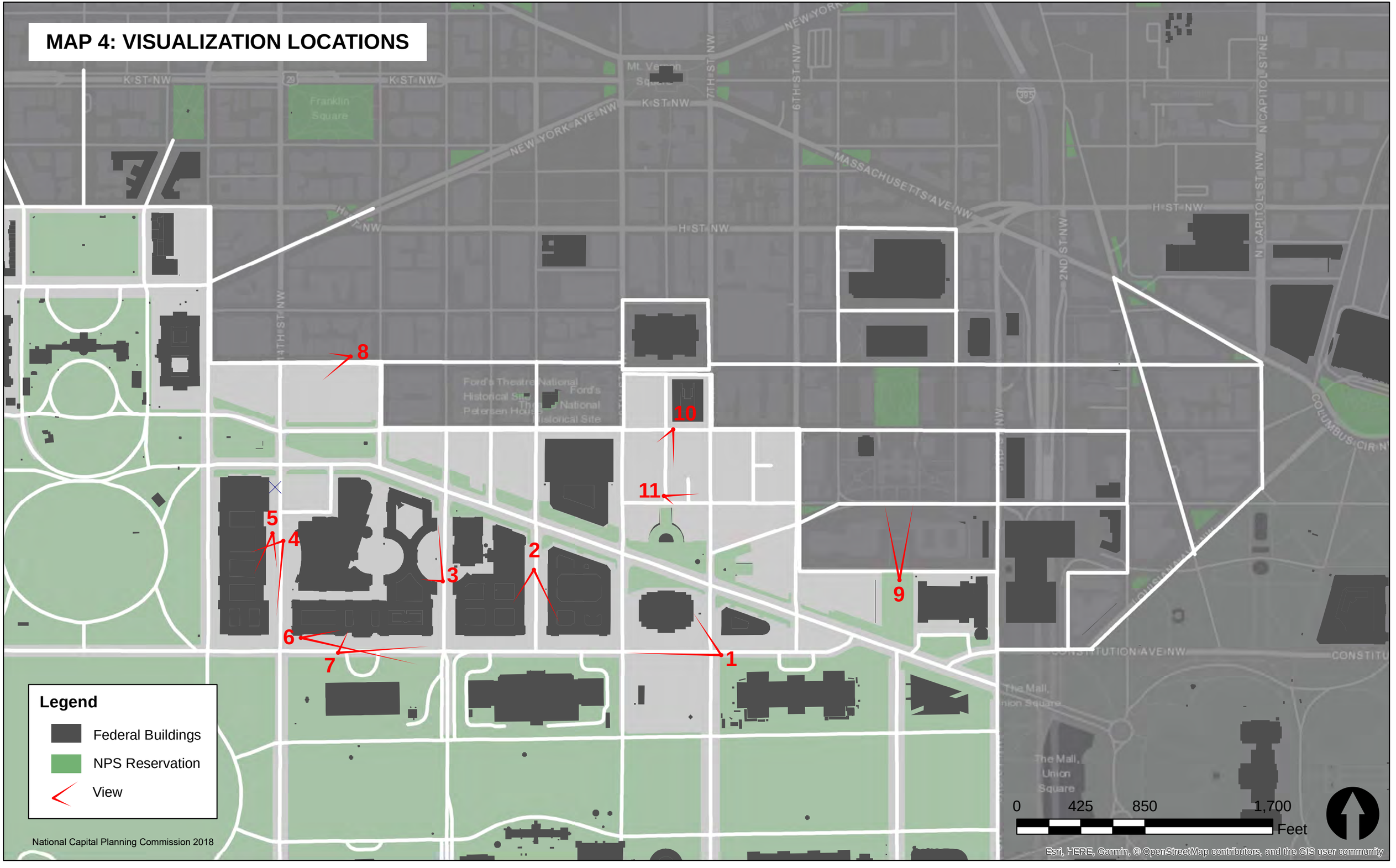
FOR DISCUSSION ONLY - October 24, 2018

MAP 3: SCENARIO WHERE DRAFT GUIDELINES ALLOW INSTALLATIONS ADJACENT TO FEDERAL PROPERTIES

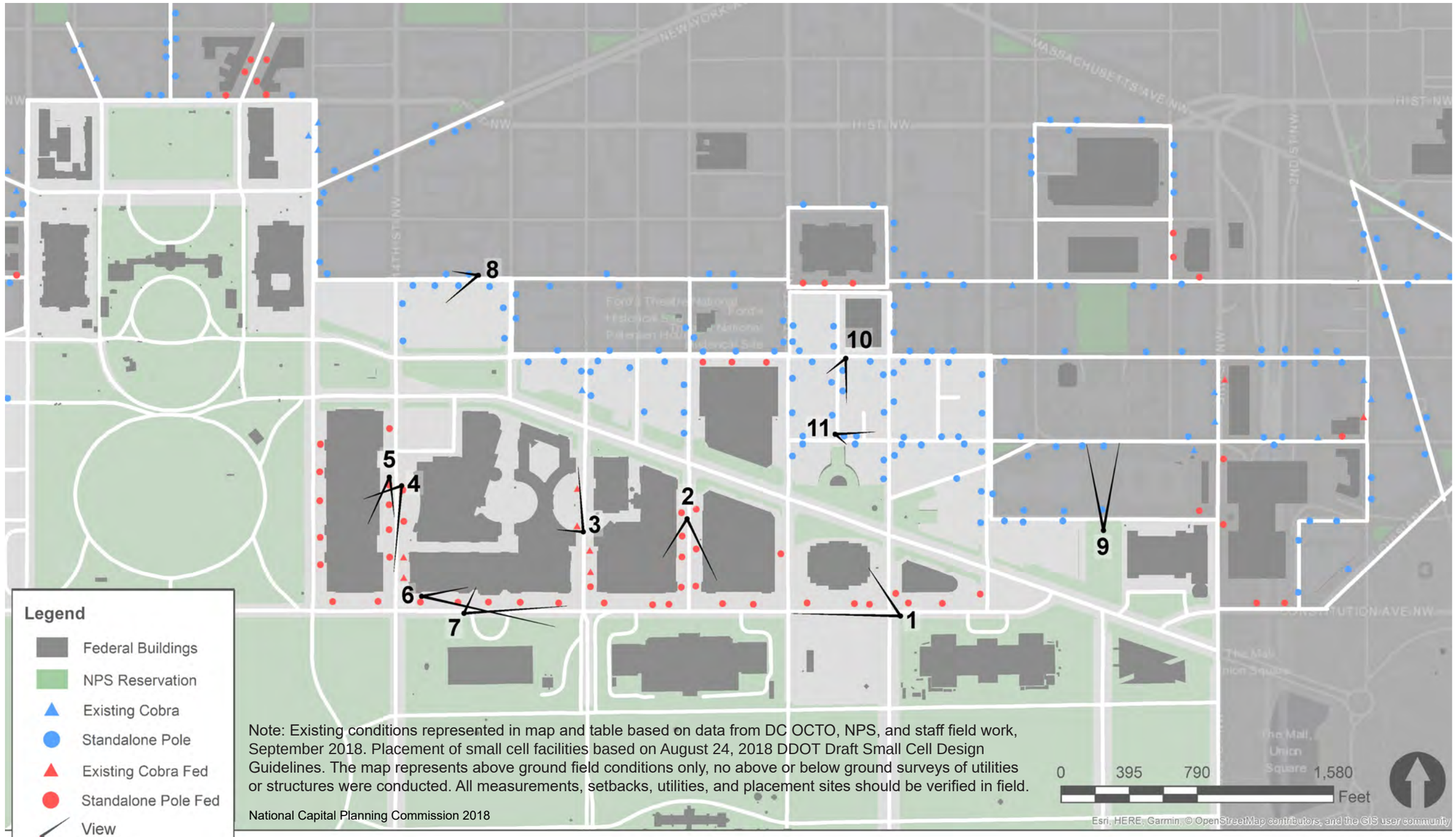


FOR DISCUSSION ONLY - October 24, 2018

MAP 4: VISUALIZATION LOCATIONS



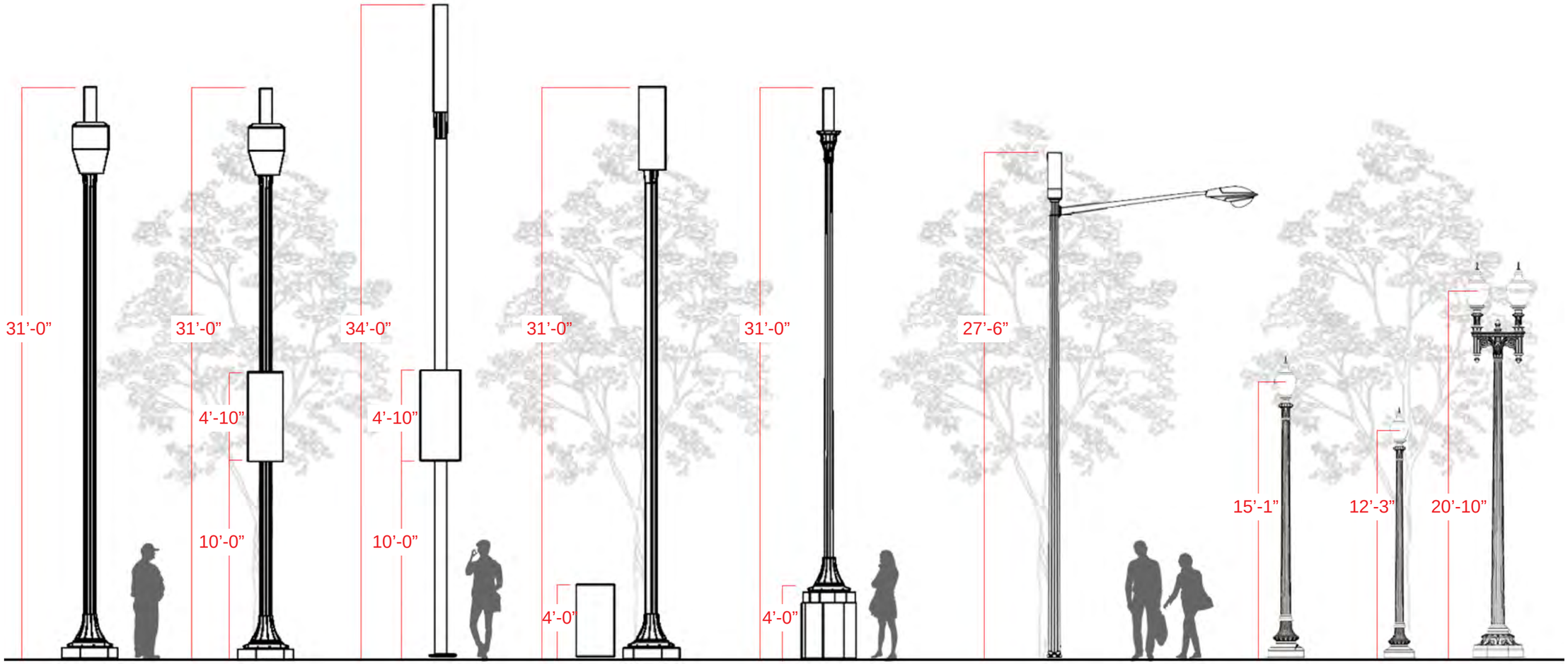
VISUALIZATION KEY MAP



MAP OF VIEW LOCATIONS

DRAFT FOR DISCUSSION ONLY. STUDY AREA MAP FOR REFERENCE.
VISUALIZATIONS DEPICT A SCENARIO WHERE GUIDELINES ALLOW INSTALLATION ADJACENT TO FEDERAL PROPERTY.
VISUALIZATIONS DO NOT REFLECT A PROPOSED INSTALLATION.

POLE TYPE KEY GRAPHIC



POLE TYPES USED IN VISUALIZATIONS

THE POLE TYPES ABOVE ARE REFERENCED IN THE VISUALIZATIONS THAT FOLLOW.
POLE TYPE ILLUSTRATIONS BASED UPON AVAILABLE INFORMATION AND NOT INTENDED TO REPRESENT ANY CARRIER’S SPECIFIC DESIGN OR PROPOSAL, AS THEY MAY VARY.
ILLUSTRATIONS REPRESENT A RANGE OF DIFFERENT STYLES AND EQUIPMENT PLACEMENT FOR DISCUSSION PURPOSES ONLY, AND DO NOT REFLECT A RECOMMENDATION.
POLES IN VISUALIZATIONS COLORED TO MATCH SURROUNDING STREETLIGHTS PER DRAFT GUIDELINES.
EXISTING STREETLIGHT DIMENSIONS FROM 2013 NATIONAL MALL ROADS STREETSCAPE MANUAL.

VIEW 1: NATIONAL ARCHIVES

VIEW LOOKING WEST, FROM CONSTITUTION AT 7TH

EXISTING CONDITION

SCENARIO VISUALIZATION

Three standalone poles would be allowed on the northern block face of Constitution Avenue between 7th and 8th Streets, NW. They would be located in front of the National Archives Building.

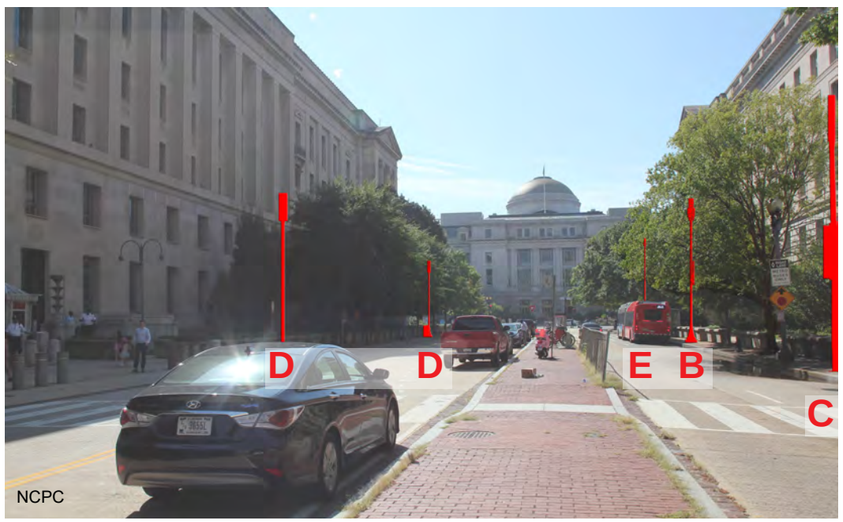
KEY WITH POLE TYPES

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

VIEW 2: 10TH STREET

VIEW LOOKING SOUTH TOWARD NATIONAL MUSEUM OF NATURAL HISTORY, FROM 10TH STREET MEDIAN

EXISTING CONDITION



KEY WITH POLE TYPES

SCENARIO VISUALIZATION

Seven standalone poles would be allowed on the block of 10th Street, NW between Constitution Avenue and Pennsylvania Avenue. The visualization shows the five poles that are furthest south toward the National Museum of Natural History.

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

VIEW 3: FEDERAL TRIANGLE

VIEW LOOKING WEST, FROM 12TH STREET ACROSS FROM FEDERAL TRIANGLE METRORAIL STATION/EPA

EXISTING CONDITION

SCENARIO VISUALIZATION

Two existing pendant poles with cobra heads are located on the west side of 10th Street, NW between Constitution Avenue and Pennsylvania Avenue, near the Federal Triangle Metrorail Station. The visualization shows the addition of small cell facilities to the tops of both poles.

KEY WITH POLE TYPES

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

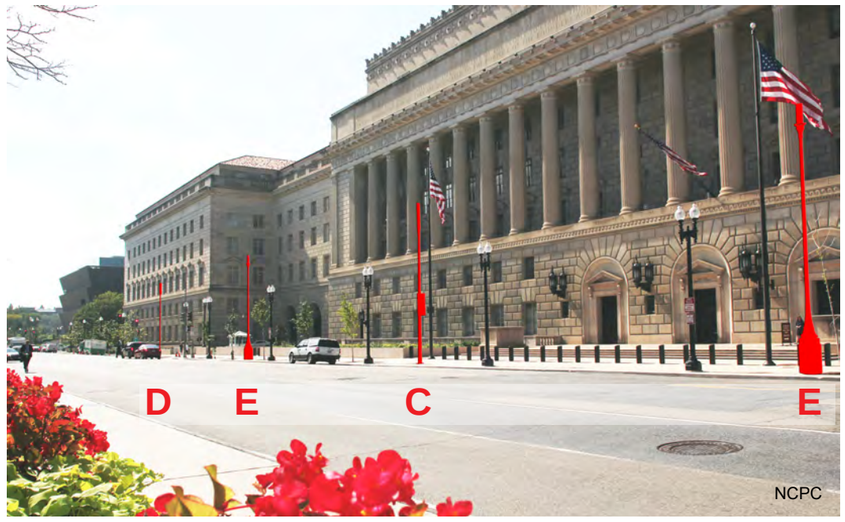
VIEW 4: DEPARTMENT OF COMMERCE

VIEW LOOKING SOUTHWEST, FROM 14TH STREET ACROSS FROM THE DEPARTMENT OF COMMERCE ENTRY

EXISTING CONDITION

SCENARIO VISUALIZATION

Five standalone poles would be allowed on the west side of 14th Street, NW, along the Department of Commerce Building. The visualization shows the four poles that are furthest south along the block. A fifth pole is located further north outside the view shown.



KEY WITH POLE TYPES

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

VIEW 5: DEPARTMENT OF COMMERCE

VIEW LOOKING SOUTH, ON 14TH STREET AT THE DEPARTMENT OF COMMERCE ENTRY

EXISTING CONDITION

KEY WITH POLE TYPES

SCENARIO VISUALIZATION

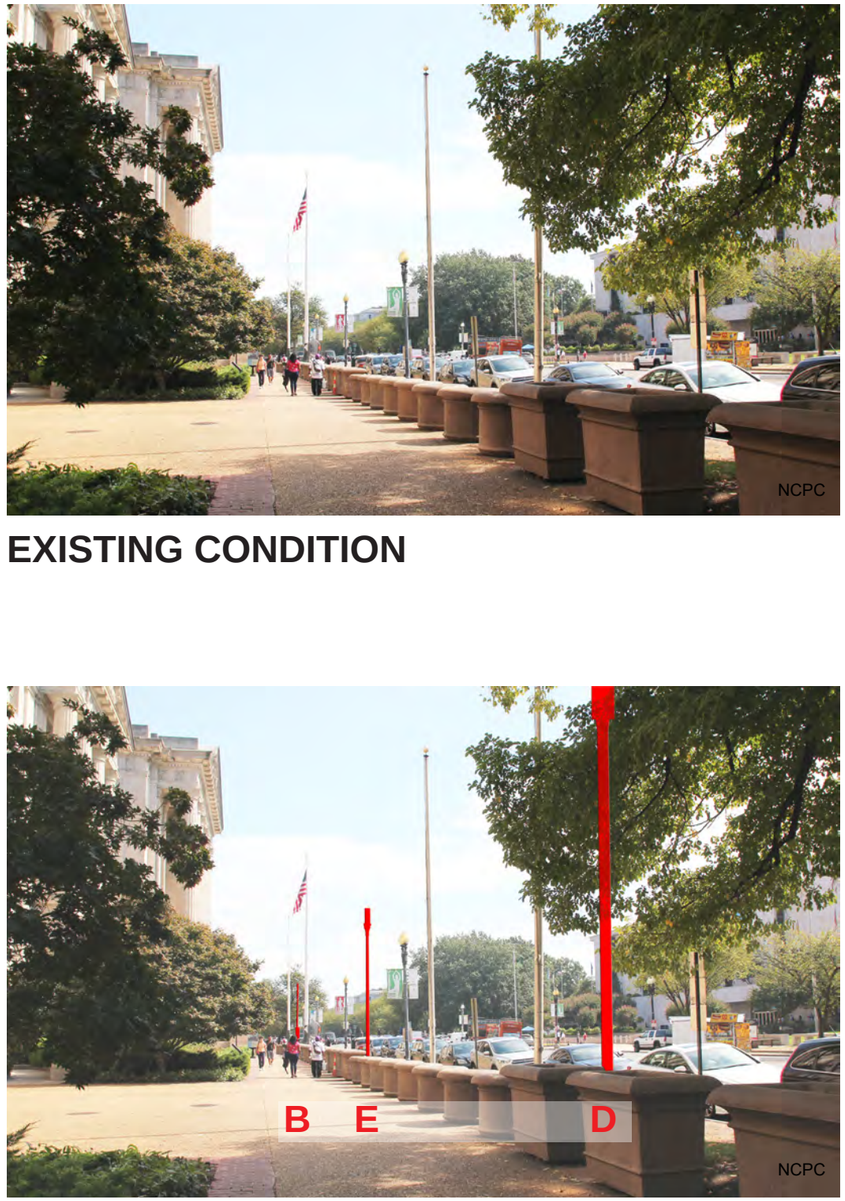
Five standalone poles would be allowed on the west side of 14th Street, NW in between Pennsylvania Avenue and Constitution Avenue. The visualization looks south along the sidewalk along the west side of 14 Street, NW in front of the Department of Commerce. Three of the five standalone poles allowed on this block are shown in the view. This pole placement is shown from a different perspective in View 4.

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

VIEW 6: CONSTITUTION AVENUE

VIEW LOOKING EAST, FROM CONSTITUTION AVENUE AT 14TH STREET/EPA

EXISTING CONDITION



KEY WITH POLE TYPES

SCENARIO VISUALIZATION

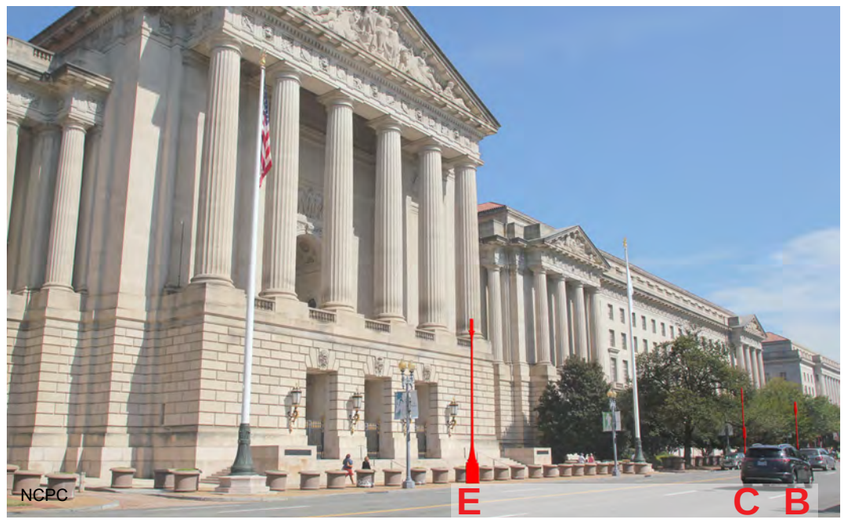
Five standalone poles would be allowed along the north side of Constitution Avenue, between 13th and 14th Streets, NW, adjacent to the Environmental Protection Agency Building. The visualization shows the three poles that are located furthest east on the block, starting near the Mellon Auditorium entrance.

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

VIEW 7: EPA

VIEW LOOKING NORTH EAST TOWARD EPA ENTRANCE, FROM CONSTITUTION AVENUE BETWEEN 13TH AND 14TH STREETS

EXISTING CONDITION



KEY WITH POLE TYPES

SCENARIO VISUALIZATION

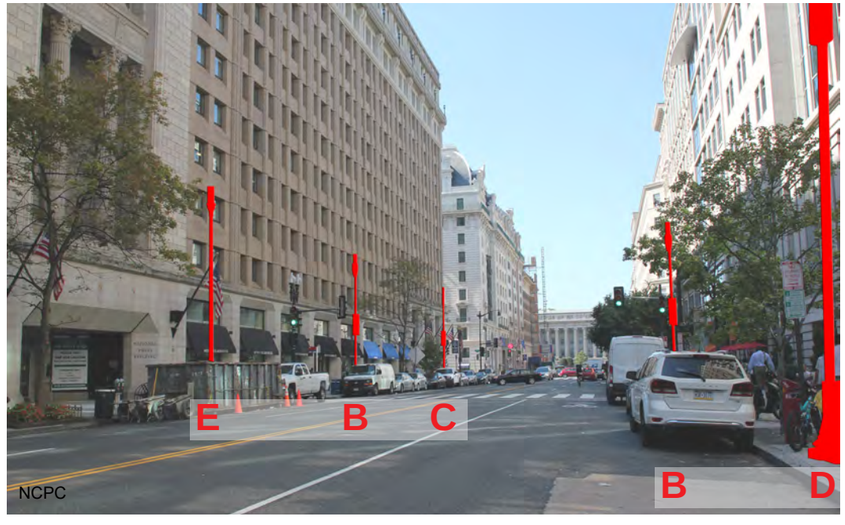
This visualization looks north toward the Mellon Auditorium entrance along Constitution Avenue, between 13th and 14th Street, NW. Three of the five standalone poles allowed on this block are shown.

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

VIEW 8: F STREET

VIEW LOOKING WEST TOWARD DEPARTMENT OF THE TREASURY, FROM F STREET AT 13TH

EXISTING CONDITION



KEY WITH POLE TYPES

SCENARIO VISUALIZATION

Six standalone poles would be allowed along F Street, NW between 13th and 14th Streets, NW. The visualization shows five of these poles, with three on the south side and two on the north side, looking toward the Treasury Building to the west. An additional pole is located outside of the view shown.

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

VIEW 9: JUDICIARY SQUARE

VIEW LOOKING NORTH TOWARD JUDICIARY SQUARE, FROM JOHN MARSHALL PARK/4TH STREET

EXISTING CONDITION

SCENARIO VISUALIZATION

Several standalone poles would be allowed on streets bisecting the Judiciary Square area. This visualization shows two potential poles located in the view corridor leading from 4th Street, NW north to the District of Columbia Court.

KEY WITH POLE TYPES

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

VIEW 10: 8TH STREET

VIEW LOOKING SOUTH TOWARD THE NATIONAL ARCHIVES, FROM 8TH STREET AT E STREET

EXISTING CONDITION

KEY WITH POLE TYPES

SCENARIO VISUALIZATION

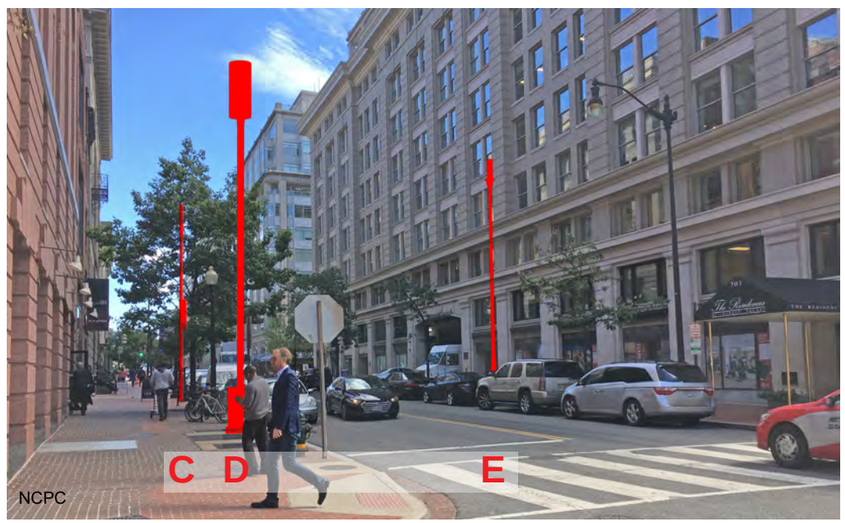
Four standalone poles would be allowed along 8th Street, NW between D and E Streets, NW. This visualization shows all four poles, two of each side of the street, in a view looking south toward the National Archives Building. The Portrait Gallery building is located to the north outside this view.

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

VIEW 11: D STREET

VIEW LOOKING EAST, FROM D STREET AT 8TH

EXISTING CONDITION



KEY WITH POLE TYPES

SCENARIO VISUALIZATION

Three standalone poles would be allowed along D Street, NW between 8th and 7th Street, NW. This visualization shows all three poles, two on the north side of the street, and one on the south. The U.S. Navy Memorial is located to the right, outside this view.

DRAFT FOR DISCUSSION ONLY. VISUALIZATION FOR ILLUSTRATIVE PURPOSES ONLY. DOES NOT REFLECT A PROPOSED INSTALLATION.

APPENDIX A

NCPC Mapping Approach

- To inform the study, a GIS base map was created, including information regarding building footprints, streets, trees and existing light poles.
- Staff then documented the block lengths within the study area, identified the number of small cell facilities that would be permitted in each block face, as well as the spacing requirement to be applied.
- Using the available data, as well as site visits, potential locations for facilities were identified, prioritizing the use of existing cobra poles or third-party poles with traffic signals, and then the placement of stand-alone poles.
- For the purposes of the study, NCPC staff did not look at poles in un-named alleys, as there were relatively few and based upon our understanding, they are not likely to be useful for coverage in high-density areas like downtown Washington, DC.
- To site new stand-alone poles, a number of important criteria were applied (see Summary of Criteria from the Draft Guidelines below)
- In addition to GIS data, staff utilized field visits to generally verify potential facility placement. However, given the broad nature of the study, some placement factors could not be evaluated, such as the presence of underground utilities. As such, the resulting analysis, shown in Map 2, represents a best estimation of where small cell infrastructure might be placed given the information currently available.

Summary of Criteria from the Draft Guidelines

A. Small cell facility locations were evaluated with priority for existing poles, then moving to new stand-alone poles

B. The following provisions apply to All Poles, Existing (Pendant Poles with Cobra heads) and New Standalone Poles:

   - Number, spacing and carrier limit – per blockface requirements in guidelines
   - Historic Preservation: poles not allowed within twenty feet (20’) of a boundary line (property line) of a D.C. Landmark, a National Historic Landmark, or a property individually listed in the National Register of Historic Places.
   - Federal property: Poles not allowed adjacent to a federal property.

C. New standalone poles must meet the following criteria:

   - Alignment - align w/ existing streetlights and street trees as to maintain organization, keep out of pedestrian path
   - Distance from building face - Maintain a minimum of ten feet (10') from any above grade building face, including projecting windows

- ADA - Do not violate applicable local or federal law, including the 1990 Americans with Disabilities Act
- Trees: a minimum of fifteen feet (15’) from the tree trunk, measured from the outside of the tree
- Fire safety - minimum of six feet (6’) from existing fire hydrants or buildings’ fire connections.
- Light and traffic signal poles: a minimum distance of 10 feet (10’) (8.2.8.2 pg. 14)
- Bike racks: a minimum of 3 feet (3’) from bicycle racks and shall not impede the attachment of bicycles.
- Bikeshare stations – minimum of four feet (4’) from the rear wheel of a docked bicycle rack, five feet (5’) from each end of a station, do not install to prevent solar access to the solar panel.
- Clear Sight Line Distances Poles shall not be located within a 30’ x 30’ sight distance triangles at intersections, if rights-of-way are than 120’ or less. A 50’ x 50’ sight triangle required for rights-of-way greater than 120’.
- Driveways – maintain a minimum of fifteen feet (15’) as measured from the edge line of the driveway.

CFA 19/JUL/18-1

LOCATION:
throughout the city
Washington, DC

OWNER:
D.C. Department of Transportation (DDOT)
National Capital Planning Commission (NCPC)

PROPERTY:
Small cell infrastructure in public space

DESCRIPTION:
Draft guidelines for the installation of low-power antennas for cellular and data communication

REVIEW TYPE:
Information presentation

Letter

27 July 2018

Dear Mr. Acosta:

In its meeting of 19 July, the Commission of Fine Arts was pleased to hear an information presentation regarding the anticipated installation of small-cell telecommunications infrastructure throughout the District of Columbia. The Commission provided comments to assist in the development of guidelines intended to regulate the location and appearance of this equipment.

In their discussion, the Commission members commented on the great potential impact of this new infrastructure—a vast array of thousands of new poles, antennas, and associated equipment in public space across the city; they cautioned that many members of the community may be alarmed by this impact unless it is well controlled. They noted that this proposal for privately operated public infrastructure should be considered similar to other publicly regulated utilities, such as electricity, natural gas, water, and sewers; they emphasized that the small-cell project requires a public advocate to protect public values, not just a facilitator to implement private-sector enterprise. They requested the development of context-sensitive guidelines, such as those used

by federal and local transportation agencies that modify standard engineering practices as appropriate for historic districts or sensitive environmental conditions.

The Commission members also raised the concern that this initiative is based on accommodating current technology that may soon become obsolete, leaving communities burdened with unnecessarily large and outmoded infrastructure. They emphasized that successful integration of this new technology into the public realm is a holistic design problem, and they encouraged the direct engagement of artists, architects, industrial designers, and other design professionals, both in the development of guidelines and in the design of the poles and equipment; they suggested that the project sponsors hold a design competition to develop the best solution.

For development of the guidelines, the Commission members supported the use of dedicated poles for this infrastructure and encouraged the maximum use of hoteling, where several vendors share installation sites to reduce the number of new poles; they noted the great impact from multiple poles in public space, especially on streets with narrow sidewalks. Likewise, they recommended that new infrastructure be located first in alleyways, not streets, to reduce visual impact; they also requested further study of the impact of equipment installed in close proximity to residential structures.

The Commission anticipates reviewing the work of the interagency committee as it is developed, as well as further submissions of small-cell installations that fall within its jurisdiction, as required by federal law, including the Shipstead-Luce Act and Old Georgetown Act. As always, the staff is available to assist you.

Sincerely,

/s/Thomas E. Luebke, FAIA
Secretary

Marcel Acosta, Executive Director
National Capital Planning Commission
401 9th Street, NW, Suite 500-N
Washington, DC 20004

cc: Jeff Marootian, D.C. Department of Transportation
Eric Shaw, D.C. Office of Planning

CFA 20/SEP/18-3

LOCATION:
throughout the city
Washington, DC

OWNER:
D.C. Department of Transportation (DDOT)

PROPERTY:
Small-cell infrastructure in public space

DESCRIPTION:
Draft guidelines for the installation of low-power antennas for cellular and data communication

REVIEW TYPE:
Final

PREVIOUS REVIEW:
CFA 19/JUL/18-1

Letter

27 September 2018

Dear Mr. Marootian:

In its meeting of 20 September, the Commission of Fine Arts reviewed a proposal for draft guidelines addressing the installation of small-cell telecommunications infrastructure throughout the District of Columbia. The Commission endorsed a programmatic approach for the review of this initiative but did not take an action, providing the following comments to assist in the refinement of these guidelines.

The Commission members expressed appreciation for the continued development of the guidelines intended to regulate the location and appearance of small-cell installations, and they acknowledged the important comments provided by the public—which include concerns regarding aesthetics, public health, and the local and federal review process for this infrastructure. They noted the fundamental inconsistency between the elegance and precision of contemporary consumer cellular devices and the obtrusive appearance of the infrastructure systems required to support them; while most residents would welcome increased service

capacity, there is little apparent support from the community for the imposition of more visual clutter in the public realm. They observed that the city's existing lampposts and fixtures were developed at particular times with particular performance standards, ranging from iconic early twentieth-century Beaux-Arts designs to more functional modern designs; they affirmed that these are not suitable for small-cell equipment installations. They therefore advised the development of an elegant and holistic design typology for the small-cell installations, rather than allowing a discordant kit of parts—antennas, equipment cabinets, and cables—to be clumsily attached to existing or new streetlight poles. They encouraged a more expansive study of best practices and design approaches for similar infrastructure in the U.S. and abroad to help develop a forward-looking solution that is not merely expedient but which appropriately integrates this technology into the public realm.

The Commission members offered several additional suggestions for the guidelines as they are refined, such as incorporating the matrix of allowable small-cell installations developed by the Commission staff. They also commented that the draft guidelines require further changes to meet the stated goal of treating all areas of the city equitably; they suggested consideration of applying consistent standards across the entire city, such as requiring underground equipment vaults in all locations. They noted that the city is composed of numerous types of public spaces with unique experiential qualities, and they advised the development of three-dimensional, parametric design drawings to test the proposed pole type, location, and spacing matrices set forth in the guidelines. They also requested the construction of full-scale mockups to evaluate the design details and overall impact of the complete assemblies.

The Commission anticipates the continued review of the guidelines for this major public infrastructure project and encourages discussions with other stakeholders as the project progresses through the review process. As always, the staff is available to assist you.

Sincerely,

/s/Thomas E. Luebke, FAIA
Secretary

Jeff Marootian, Director
D.C. Department of Transportation
55 M Street, SE, Suite 400
Washington, DC 20003

cc: Marcel Acosta, National Capital Planning Commission
Peter May, National Park Service
Mina Wright, General Services Administration
Eric Shaw, D.C. Office of Planning

Comments to National Capital Planning Commission (NCPC) on Draft Small Cell Design Guidelines produced by the Public Space Committee (PSC)

Linnea Warren, Woodley Park October 24, 2018

I started educating myself about Small Cells and 5G after I discovered that the District had written a Master License Agreement ("MLA") and held meetings late last year to tell companies how to install these "next generation" telecom systems in Washington, D.C. Elsewhere in the U.S (and the world), Small Cells are controversial and have been the subject of vehement debate. But in D.C., someone, apparently the Mayor, made the executive decision to allow multiple commercial cell carriers to install their own networks in the public right of way, without consulting either the public or the D.C. Council. Although I'm sure those working hard to get Small Cells here think the city's best interest requires early deployment, I strongly disagree. There is no advantage to D.C.'s jumping on the bandwagon early; to the contrary, its active promotion of the inevitable forest of overlapping installations will do great harm to this city's unique character. So before I offer specific comments on the draft design guidelines, I must explain why I think D.C. would do better to take a different approach.

My husband, a retired venture capital lawyer who represented tech companies, says insiders joke that first-generation technology is only for suckers; often it's little more than a proof of concept being beta-tested by early users. Those in the know wait for the second generation at least until the bugs have been worked out.

The FCC portrays the race to 5G as a sort of existential competition even though it's not yet clear what it *is*. It's not a specific technology; "5G" is just shorthand for a still-to-be-developed "fifth generation" wireless broadband service that will use high-frequency millimeter waves (in addition to the lower-frequency waves used by 4G LTE).[1] Because high-frequency waves have a shorter range than the microwaves used now, more antennas will be needed – thus Small Cells. But the concept is still developing and its real-world operation is in flux; equipment providers and network operators are still working out the technology and applicable standards.[2] Moreover, 5G is being promoted by industry out of a desire for higher efficiency and more bandwidth, not due to urgent demand from consumers for any particular application.[3]

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[1] https://spectrum.ieee.org/telecom/internet/5g-is-in-danger-of-being-oversold

[2] https://www.washingtonpost.com/news/innovations/wp/2015/10/26/what-is-5g-and-why-should-lawmakers-care/?utm_term=.708b19d969ec

[3] https://spectrum.ieee.org/tech-talk/telecom/wireless/5gs-killer-app-may-not-be-an-app-at-all
http://www.3gpp.org/release-15 http://www.3gpp.org/release-16

In articles and meetings like the PSC's hearing on October 15th, Small Cells and 5G are touted as a necessity for people who've ended their landline phone service and are doing more with their phones – not just talking but data-intensive things like streaming videos. Many claim we need 5G to ensure that 911 systems work.

As the PSC Chairman explained on the 15th, the only thing that's wireless about wireless phones is the communication between phone and antenna; everything else goes via lines. He and the industry reps testifying chatted about how "clear space" is needed for that wireless step; they agreed that a clear line of sight is even more important for 5G than for 4G, and that the more substantial the barrier between the device and the antenna, the more problematic the service. Then how could you use a 5G phone indoors unless you were sitting right next to a window with a clear view of a Small Cell? Turns out that you can't; so much for a robust 911 system.

This began to dawn on me as I listened to the industry reps argue against putting Small Cells in alleys, saying they wouldn't work because the radio signals would be blocked. When they kept mentioning the need to put Small Cells "where the users are," I realized that the infrastructure industry is rushing to install must be designed to provide 5G service only OUTDOORS, on the street and in public places, NOT INSIDE people's homes and businesses.

As I left, I happened to meet the AT&T rep and asked her about my conclusion, which she promptly confirmed. She said the intended users of Small Cells are ONLY *People on the street and Things on the street*, repeating that for emphasis. She further explained that, since 5G radio waves don't reach into buildings, each structure would need to install its own DAS systems to provide 5G service indoors.

I can see how a DAS system might work in a large open room[4], but a building with interior walls presents still more barriers, so I can't help but wonder how that solution would work in an office or apartment building. One Verizon customer in Houston was unable to participate in his provider's test of its prototype 5G home service because "There wasn't a strong enough signal… My neighbor's garage apartment was between my apartment and the micro cell installation." Another, who had a better view of the nearest Small Cell, explained in an online forum what they did to hook him up: "They … mount a small, oven-mitt sized antenna on the inside or outside of your house. They literally bolted one on the side of my house.

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[4] https://www.rcrwireless.com/20170502/network-infrastructure/das-deployments-stadium-racetrack-city-center-tag17

They run a wire from the antenna into your house (or through your house if the antenna is inside), so make sure there's a good path to run the wire from the antenna to the entry point discreetly. The distance from your house to the node matters. My closest node is about three blocks away, and my connection is fine."[5] What happened inside was not described; it's our job to figure out how to access those fast new signals in our homes. More wireless antennas? Fiber?

Despite the current FCC's vigorous efforts to promote the telecom industry's interests, other jurisdictions have managed to find ways to protect their cities from the still-unknown effects of Small Cell installations. In contrast to the measly 10' setback in D.C.'s MLA (less if the Right of Way is restricted), Montgomery County requires a 60-foot setback for equipment on existing structures in residential zones; it is considering reducing the setback on new installations from 300 to 30 feet, but is getting pushback from angry residents.[6] Petaluma, California, adopted strict requirements last July that allow Small Cells on electrical utility poles only in mixed use, commercial and industrial zones, not residential; established a 500-foot setback from small cells to any residence; and set a 1,500 foot setback between any two Small Cells from any Wireless Carrier.[7]

The FCC in September restricted local governments' control over new Small Cell infrastructure in a ruling the sole Democratic Commissioner described as "extraordinary federal overreach." [8] State and municipal organizations around the country are howling and litigation is anticipated; instead of joining with them, D.C. is letting the administration impose an unproven business model on D.C. residents.

To my mind, the uncertain future benefits of 5G are just too remote to justify subjecting D.C. to the many negative effects Small Cells will have on the appearance (and health) of this unique city. Our history, status as the Nation's Capital, and unique streetscape make this the *worst* place to serve as a test site.

The draft Small Cell Design Guidelines assume that it is important for D.C. to get 5G ASAP, but the validity of this assumption is questionable and should be more

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[5] https://spectrum.ieee.org/tech-talk/telecom/wireless/verizons-5g-rollout-experiences-a-mixed-bag-so-far

[6] https://www.washingtonpost.com/transportation/2018/09/26/montgomery-county-considers-allowing-cellular-equipment-closer-homes/?utm_term=.9064c0819720

[7] https://ehtrust.org/petaluma-california-landmark-vote-for-500-setbacks-for-small-cell-wireless-installations-near-homes/

[8] DOC-354283A5.pdf STATEMENT OF COMMISSIONER JESSICA ROSENWORCEL APPROVING IN PART, DISSENTING IN PART Re: Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment, WT Docket No. 17-79; Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment, WC Docket No. 17-84

widely discussed. If installing Small Cells to deliver 5G service is that important, then the District ought to ensure that residents of ALL Wards get access to it, and that it is delivered in a manner that doesn't destroy their surroundings or harm their health. We should not give private companies the right to cherry pick.

Here are some additional comments on specific sections of the draft guidelines:

1.1 I would explicitly include the Urban Forestry Administration in the list of agencies working to preserve the District's unique streetscape.

1.5 I would change the guidelines' assumption that installing Small Cells is best accomplished by allowing multiple for-profit companies to install their own systems, in the locations they choose, whether or not they overlap with other companies' systems. To avoid the unsightly duplicative infrastructure that would result, and the unequal distribution of service that must be expected, I would prefer that D.C. take control of Small Cell deployments by installing the infrastructure itself, then leasing access to commercial carriers using multi-carrier nodes. (I am guessing that is what the term "hotelling," means, but haven't been able to find a good non-technical definition to confirm that!) If D.C. should decide not to do that after public discussion, at the very least it should require carriers to share poles, antennas, power sources, etc., in order to minimize the total number of Small Cells littering the city. The carriers already expect to share the fiber lines connecting their antennas, so they might as well share the antennas as well.

2.2 The deadline should be extended until after the NCPC meets on November 1st to give it time to submit official comments. And I must point out again that since two crucial groups of stakeholders were not involved – the public and the D.C. Council –final guidelines should not be adopted until the next draft has been placed in locations where the public may actually find it, like branch libraries, and both groups have been given enough time to review and comment on them.

2.4 This list should include the National Capital Planning Act, the Old Georgetown Act, D.C.'s Comprehensive Plan, the Sustainable DC 2.0 plan**,** and the 2020 Historic Preservation Plan. (If I've missed something, please add it too!)

2.4.7 I wish it *did* apply, but the FCC ruled on March 22, 2018, that small wireless facilities deployed on non-Tribal lands are exempt from review under the National Historic Preservation Act (and the National Environmental Policy Act.) This makes the NCPC's role harder but even more important in protecting this Capital, since we need to find other legal bases to make sure that rampant Small

Cell deployments don't destroy the appearance of D.C. I don't think the Historic Landmark and Historic District Protection Act of 1978 has been preempted (yet), so it might be worth mentioning here, though it *is* part of the DC Code.

3.1.1 I would add to the guidelines the goal of ensuring that carriers installing Small Cells and associated equipment and structures understand and fully comply with the many laws and regulations that protect trees in the District. They should take no action that might damage or threaten the health of existing trees, whether on public or private property (including pruning, since Verizon's Chairman has publicly stated [9] that foliage does not block radio waves) or that might threaten the District's stated goal of achieving 40% canopy coverage. During installation, carriers must take the same precautions to protect trees as all other contractors (including erecting fences). Carriers should never be allowed to dig or place a pole, cabinet or any other auxiliary equipment within any street tree's critical root zone or in any designated tree box that is not yet planted with a tree but has been designated for that purpose.

4.1 Small Cells' effect on people's health is not assured (many experts have expressed concern[10]) but the FCC won't allow objections based on health so long as installations comply with standards set 20 years ago for a totally different technology[11]. So to ensure residents' safety until proper testing is done, the MLA should be revised to substantially increase the setback required in residential areas. The exact distance should be set after public and Council debate.

4.2.1 *All* applications should be subject to public review by ANCs and the Public Space Committee, and we might set a procedure for carriers seeking variances.

5.1.1 Even on private property? What will happen if a homeowner wants some extra income and lets a carrier install a Small Cell and pole on his front lawn?

5.2 We now know that the alley locations preferred by your committee, which presumably were chosen for aesthetic reasons, don't fit the industry's need for clear lines of sight with users. That's one more reason to slow down – we need to find a way to avoid permanently scarring the streetscape by installing structures

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[9] https://www.washingtonpost.com/transportation/2018/09/26/montgomery-county-considers-allowing-cellular-equipment-closer-homes/?utm_term=.9064c0819720

[10] https://ehtrust.org/small-cells-mini-cell-towers-health-letters-scientists-health-risk-5g/

[11] https://www.publicintegrity.org/2018/01/19/21502/while-residents-fret-over-safety-small-cells-cities-still-wait-federal-guidance

that won't benefit us for years and have never been fully tested. We need to find other ways to avoid the inevitable ugliness and might even add a section for prohibited locations, which could be determined after more thorough public discussion. I shudder to think how the National Mall would look if covered by lines of 31-foot poles set 60' apart.

5.3.4 Why are the new poles that tall? Early descriptions of Small Cells emphasized how close to the ground they would be, admittedly when mounted on existing streetlights, but now we are told the carriers want separate new poles that will tower over our historic globe streetlights. Is that really necessary?

5.4 I'd require carriers to remove unused poles and equipment promptly.

5.4.2 It would be worth reiterating that carriers do not have the right to prune trees on public or private property to prove a clear space for 5G radio waves, especially since we now know, per Verizon's CEO, that foliage does not block them. To avoid mistakes that could take years to rectify, this should be an absolute prohibition. Carriers should know that many trees in new private developments were planted as an agreed-upon public benefit in exchange for the right to build and as such must be protected as much as those planted in the public right of way.

Chart 2 I may not be reading this correctly, but I don't see how the right column works with the three on the left and am afraid that, if carriers can erect their own poles, the result will be visually overwhelming. Five carriers have signed MLAs so far; what if more do? I'd reduce the total poles allowed per block and clearly state the maximum number that can be installed, not per carrier but overall.

In an October 22nd Washington Post article on driverless cars, Brian Kenner, the District's deputy mayor for planning and economic development, was quoted as saying "he's pleased 'frankly, to not be the tip of the spear … in autonomous vehicles.'… 'We appreciate being sort of in the 2.0 wave around this.' "[12] D.C. would do well to adopt the same attitude towards Small Cells and 5G by slowing down until standards are firmed up, the technology improves, and we get a more reasonable FCC. Why allow obtrusive infrastructure that once installed will be hard if not impossible to get rid of to threaten the appearance of this important and unique city, its environment, its tree canopy, or the well-being of its residents?

[12] https://www.washingtonpost.com/local/trafficandcommuting/from-model-t-to-driverless-ford-to-launch-fleet-of-robot-cars-in-washington/2018/10/21/6d98119e-d2f6-11e8-b2d2-f397227b43f0_story.html?utm_term=.1ccb2528efe4