223 Attachment 5

City of Beacon
Small Cell Wireless Facility
[Added 10-13-2021]

Small Cell Wireless Facility

Design and Review Guideline Policy

Adopted: October 13, 2021

Table of Contents

I. BACKGROUND AND PURPOSE

The City of Beacon has adopted the following Guidelines in order to facilitate and encourage the orderly installation of wireless telecommunications infrastructure for the public convenience. These Guidelines apply to requests to locate small wireless facilities throughout the City and within the public rights-of-way (the "ROW") pursuant to Chapter 223, § 26.4 Wireless Telecommunications Services Facilities. The City requires wireless service providers and wireless infrastructure providers to locate small wireless facilities in a responsible fashion. These networks of low-powered micro antennas provide cellular and data coverage to supplement the providers' macrocellular networks. New small cell installations will improve the providers' ability to meet current and future consumer cellular and data needs.

The following design Guidelines have been developed by the City of Beacon pursuant to Chapter 223, § 26.4(10) of the Code of the City of Beacon to ensure that the design, appearance, and other features of small wireless facilities are compatible with nearby land uses; to prevent the intangible public harm of unsightly or out-of-character deployments; to ensure vehicular and pedestrian traffic safety and coordinate various uses in the right-of-way; and to protect the integrity of historic, cultural, and scenic resources and citizens' quality of life.

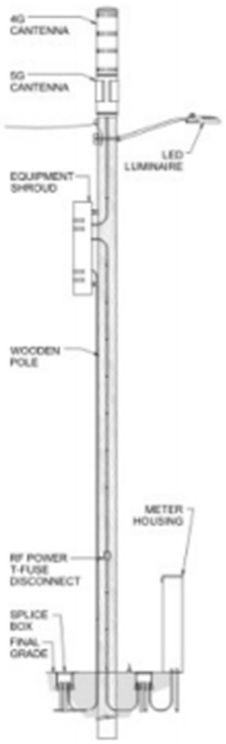
These guidelines supplement the requirements in Chapter 223, § 26.4, particularly the standards on Visual Mitigation that:

> "Landscaping and/or screening and mitigation, including but not limited to architectural treatment, stealth design, use of neutral or compatible coloring and materials, or alternative construction and transmission technologies, shall be required to minimize the visual impact of such facility from public thoroughfares, important viewsheds designated by the City Council or listed in the City's Comprehensive Plan, and surrounding properties to the extent practicable, as determined by the Planning Board," and
>
> "Wherever possible, new wireless telecommunication services shall be in the form of antennas attached to an existing building or structure and/or shall be in the form of stealth structures."

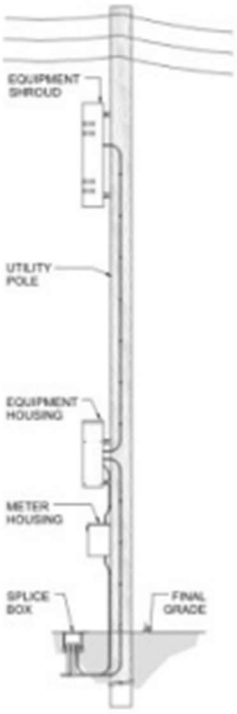
This document establishes design and aesthetic policies that all small wireless facilities installed should meet prior to installation within the City's boundaries. The term "should" is used when the standard is to be applied unless the Planning Board or City Council finds a strong justification for an alternative solution in an unusual and specific circumstance; and "may" means that the standard is an optional guideline that is encouraged but not required.

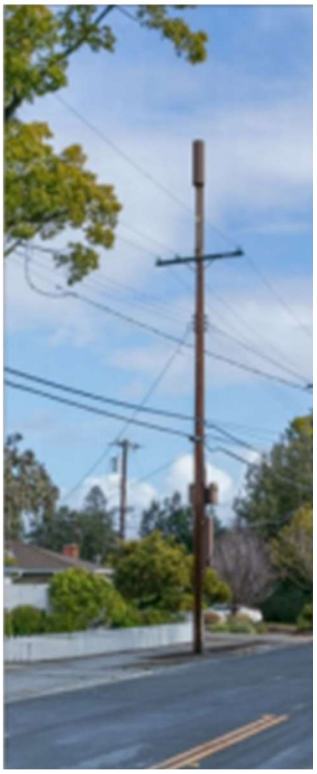
II. INSTALLATION EXAMPLES

Existing Streetlight Attachment



Utility Pole Attachments





Freestanding Small Cell

Roof Mounted Small Cell

III. AESTHETIC GUIDELINES

A small wireless facility should utilize the smallest, least visually intrusive antennas, components, and other necessary equipment available at the time of installation.

A. Collocation. The City desires and encourages collocations between multiple wireless service providers on the same support structure whenever feasible.

B. Antennas.

1. Antennas should, to the extent technically feasible, be designed and installed to appear hidden within the utility pole or to appear like an original part of the utility pole or wireless support structure. Each side mounted antenna installation not hidden within a utility pole should be located entirely within a shroud enclosure not more than three (3) cubic feet in volume that is capable of accepting paint to match the approved color of the small wireless facility.

2. Top-mounted antennas and their enclosures should not extend the diameter of the utility pole or wireless support structure at the level of the antenna attachment. The diameter of the antenna or antenna enclosure should not exceed the diameter of the top of the wireless support structure pole, and to the maximum extent practical, should appear as a seamless vertical extension of the pole. Where the maximum shroud diameter exceeds the diameter of the top of the pole, the shroud should be tapered to meet the top of the pole.

3. Side-mounted small wireless facility antennas within a shroud enclosure and side-mounted small wireless facility equipment enclosures should be, as nearly as possible, flush-mounted to the utility pole or wireless support structure at the level of the attachment.

C. Equipment Enclosures Generally. Equipment enclosures, including electric meters, should be as small as possible. Ground-mounted equipment should incorporate concealment elements into the proposed design matching the color and materials of the wireless support structure unless other materials or colors are specified by the City. Concealment may include, but should not be limited to, landscaping, strategic placement in less obtrusive locations and placement within existing or replacement street furniture.

D. Pole-Mounted Equipment Cabinet/Shrouds. All equipment other than the electric meter and disconnect switch should be concealed within an equipment shroud or cabinet. The equipment shroud should be painted, wrapped, or otherwise colored to match the existing pole or as directed by the City.

E. Ground-Mounted Equipment. Ground mounted equipment in the City right-of-way is prohibited, unless the applicant can demonstrate that pole mounted or undergrounded equipment is technically infeasible, or the electric utility requires placement of equipment on the ground (such as an electric meter). If ground mounted equipment is necessary, the Applicant should conceal the equipment in a cabinet, in street furniture or with

landscaping. Examples of conditions that would constitute technical infeasibility include shallow groundwater and the presence of existing underground utilities that would preclude underground installation.

F. Lights. Unless otherwise required for compliance with FAA or FCC regulations, the facility should not include any permanently installed lights. Any lights associated with the electronic equipment should be appropriately shielded from public view.

G. Architecture. Structures should be architecturally integrated into the environment and harmonize with the property on which they are proposed.

H. Replacement Poles. Replacement poles should be located as near as possible to the existing pole. The abandoned pole should be removed within 15 days of installing the replacement pole. Any replacement pole should substantially conform to the material and design of the existing pole or adjacent poles located within the contiguous ROW unless a different design is required by the Planning Board.

I. Landscaping. Landscape screening should be provided and maintained around exterior equipment enclosures. The planting quantity and size should be such that 100% screening is achieved within two years of installation.

J. Site Lines. Equipment should not significantly create a new obstruction to property sight lines.

K. Equipment in the Right-of-Way (ROW). All equipment located within the public ROW should be located such that it meets ADA requirements and does not obstruct, impede, or hinder usual pedestrian or vehicular travel or interferes with the operation and maintenance of traffic signals, signage, streetlights, street furniture, fire hydrants, underground infrastructure, or business district maintenance.

L. Stealth and Concealment Requirements

1. The use of stealth technology in the location and the construction of small wireless facilities is required whenever and wherever possible. Stealth technology means using the least visually and physically intrusive design and equipment that is not technologically or commercially impractical under the facts and circumstances, to employ methods that blend into surroundings and not be visible; and to minimize adverse aesthetic and visual impacts on the ROW, property, building and/or other facilities adjacent to, surrounding and in generally the same area as the requested location of such small wireless facilities.

2. Small wireless facilities, including but not limited to antennas, equipment enclosures, mounting brackets and hardware, mounting pots, cables, and shrouds, should be of a color that is identical to the utility pole or of a neutral color compatible with the color of the utility pole and any surrounding elements so as to camouflage or conceal their appearance, create consistency among right-of-way infrastructure, and to make such small wireless facilities as unobtrusive as possible, unless otherwise directed by the City.

3. Mechanical equipment and devices should be concealed underground, mounted within a concealment box designed as a decorative pole base or within unobtrusive equipment enclosures or other devices mounted directly to the pole a minimum of eight (8) feet above ground level and screened.

4. Small wireless facilities should be located and oriented in such a way as to minimize view blockage.

5. The wireless provider should use the smallest suitable wireless facilities then in industry use, regardless of location, for the particular application.

6. Additional landscaping and fencing may be required to help mitigate the effects of the installation of any ground-mounted equipment.

7. Alternative measures for concealment may be proposed by the wireless provider and approved by the Planning Board, if the Planning Board determines that the optional measures will be at least as effective in concealing the small wireless facilities as the measures required.

8. All cables, wires and connectors related to the small wireless facility should be fully concealed on the wireless support structure and should match the color of the wireless support structure or as directed by the City. There should be no external cables and wires related to the small wireless facility hanging off or otherwise exposed on the wireless support structure.

M. Noise. The applicant is required to incorporate ambient noise suppression measures and required to place the equipment in locations least likely to impact adjacent residences or businesses to ensure compliance with all applicable noise regulations.

Examples of Stealth Concealment

IV. LOCATION GUIDELINES

A. Location of Wireless Equipment- General

Small Wireless Facilities should be located:

1. In a manner that does not impede, obstruct, or hinder usual public pedestrian or vehicular travel or public safety on a ROW.
2. In a manner that does not obstruct the legal use of a ROW by a utility provider.
3. In a manner that does not violate the federal Americans with Disabilities Act.
4. In a manner that does not negatively impact the structural integrity of the associated wireless support structure.
5. In alignment with existing trees, utility poles, and streetlights.
6. Equidistant between trees when possible, with a minimum of 15 feet separation such that no proposed disturbance should occur within the critical root zone of any tree.
7. With appropriate clearance from existing utilities.
8. So as not to be located along the frontage of a Historic building, deemed historic on a federal, state, or local level.
9. Not within sight triangles at street intersections.

B. Consideration of Alternative Locations

The City reserves the right to propose an alternate location for a small wireless facility and/or wireless support structure to the one proposed in the application which the operator should use if it has the right to use the alternate location on reasonable terms and conditions and the alternate location does not impose technical limits.

C. Location Preferences

The following locational priorities should apply in the ordered specified, consistent with the City's obligation to create the least amount of adverse aesthetic impact. Where the most preferential siting locations are not being proposed, the wireless provider should provide a detailed explanation as to why such a location nis not being proposed.

1. **Most Preferred Locations:** The following are the most preferred locations for the siting of new wireless support structures :

a. Industrial Zoning Districts

b. Commercial Zoning Districts (Transitional (T) District, General Business (GB) District, Linkage (L) District)

2. **Least Preferred Locations**: The following are the least preferred locations for the siting of new wireless support structures.

   a. The Historic District and Landmark Overlay Zone

   b. The Central Main Street District

   c. Residential Zoning Districts

3. **Preference for Wireless Support Structures for Small Wireless Facilities.**

   a. Collocations on existing small wireless structure

   b. On the roof of any City-owned or federal, state or local government owned buildings or structures.

   c. Location on City-owned property, where there is no existing pole. (Stealth pole preferred).

   d. Location on existing City-owned utility poles.

   e. Location on privately owned utility poles.

   f. Location on private property. (Stealth pole preferred.)

4. **Consideration of Alternate Locations.** The City reserves the right to propose an alternate location for a wireless support structure to the one proposed in the application.

D. Small Wireless Facilities Within the National Register of Historic Places or the City's Historic District Landmark Overlay Zone

No wireless telecommunications services facility should be located in the Historic District and Landmark Overlay Zone, unless the applicant demonstrates to the satisfaction of the Planning Board that the selected site is necessary to provide wireless services, including but not limited to, filling a gap in coverage, densifying a wireless network, introducing a new service or otherwise improving service capabilities. In order to maintain the character of a historic landmark, all wireless facilities and new structures within a National Register-Listed Historic District or the City's Historic District and Landmark Overlay Zone or adjacent to a National Registered-Listed site should be located on the roof of an existing building and employ screening, concealment, camouflage, and other stealth techniques to minimize visual impacts. The placement of small wireless facilities on existing structures or new poles should be subject to the following:

1. Tower structures and new wooden structures will not be permitted.
2. Small wireless facilities should not be installed on poles located in front of a building designated as a historic landmark or listed on the National Register.
3. The design of wireless facilities and related new structures should be integrated with existing buildings, structures and landscaping, including considerations of height, color, style, placement, design and shape.
4. Small wireless facilities should be comprised of materials that are consistent with the surrounding elements so as to be concealed or to blend architecturally with any buildings or structures designated as historic landmarks or located within a designated historic district in design and color.

E. Small Wireless Facilities Within the Central Main Street District

No wireless telecommunications services facility should be located in the Central Main Street District, unless the applicant demonstrates to the satisfaction of the Planning Board that the selected site is necessary to provide wireless services, including but not limited to, filling a gap in coverage, densifying a wireless network, introducing a new service or otherwise improving service capabilities. In order to maintain the character of the Central Main Street District, all wireless facilities within the Central Main Street District should be located on the roof of an existing building and employ screening, concealment, camouflage, and other stealth techniques to minimize visual impacts.

V. ATTACHMENTS TO STREETLIGHT POLES

A. Purpose

This section governs small wireless facility attachments to a streetlight pole. Two different types of small wireless facility installations are permitted on streetlight poles, which are:

- Co-locating a small wireless facility equipment on plain (non-ornamental) wood or plain (non-ornamental) metal streetlight poles.

- Replacing an existing plain wood or plain metal streetlight pole so that small wireless facility equipment can be attached.

B. Standards

1. No small wireless facility placement should be allowed as an attachment on ornamental streetlight poles.

2. The small cell components should be sized to be visually pleasing. For a combination pole to be considered visually pleasing, it should be round with architectural transitions between the equipment cabinet and upper pole.

3. One (1) small wireless facility will be allowed by the City per streetlight pole if technically feasible and if in the determination of the City Engineer, in consultation with the Planning Board, there are no safety or aesthetic concerns. These Guidelines apply whether attachment is to an existing streetlight pole or to a replacement streetlight pole.

4. On an existing pole, the equipment excluding the antenna should be in an equipment cabinet if on the pole, otherwise shielded from view, hidden within the cantenna, or contained in an existing underground vault (required unless technically infeasible) or a new or existing ground-mounted utility box.

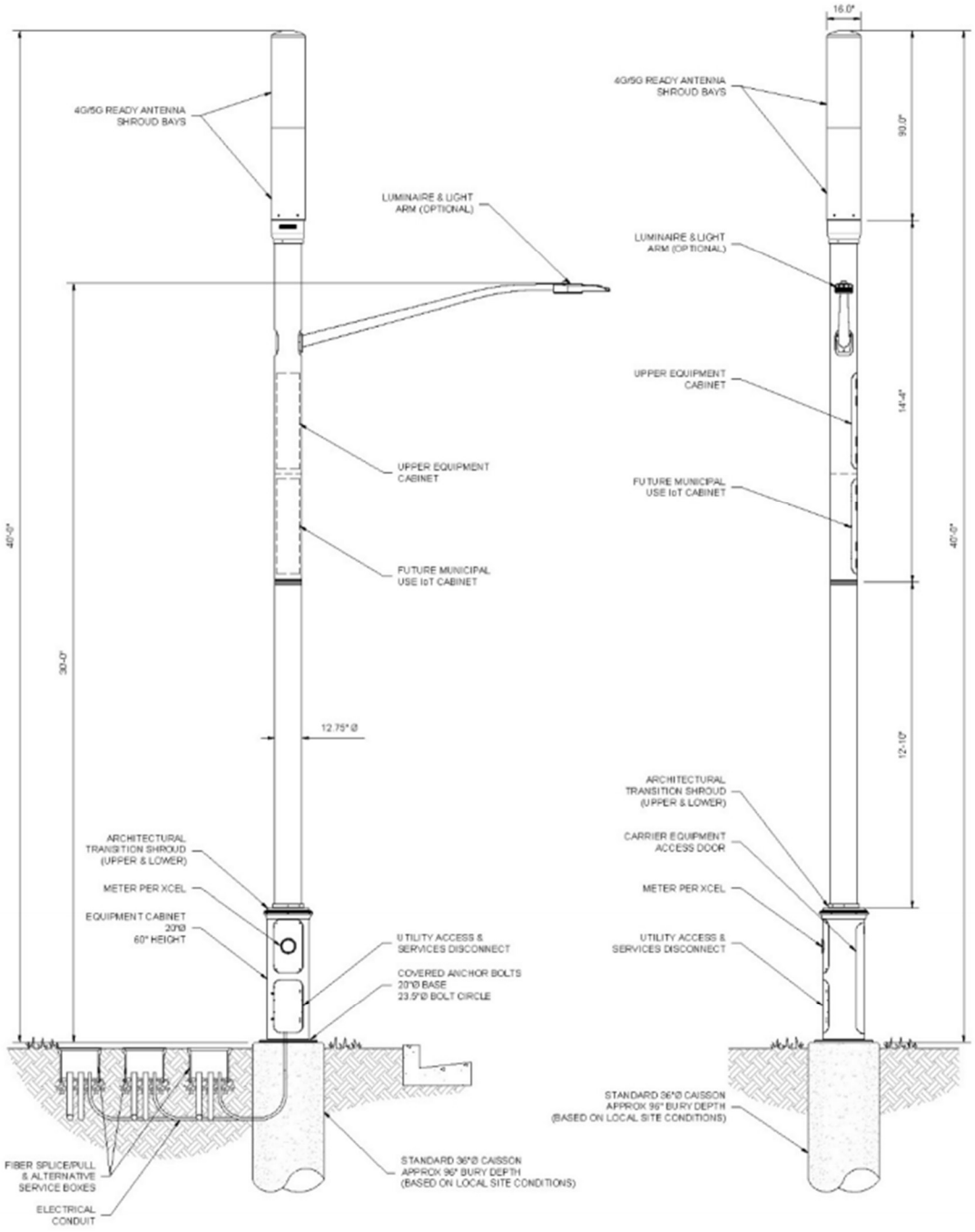
5. All equipment not concealed in a base cabinet should be positioned above the ground at height of at least eight (8) feet.

6. Equipment should be oriented away from the street. If an exception is made allowing the small cell equipment to orient toward the street, the attachment should be installed no less than 16 feet above the ground.

7. The size of small wireless facilities should be minimized as much as possible to minimize visual impact without decreasing the level of service desired by provider.

8. The lighting level-of-service should not be decreased.

9. Wood poles should only be allowed by approval in areas that have predominantly wood poles or when replacing an existing wood pole. Wood poles should not be allowed on streets which do not currently have wooden utility poles.


4G/5G READY ANTENNA SHROUD BAYS
LUMINAIRE & LIGHT ARM (OPTIONAL)
UPPER EQUIPMENT CABINET
FUTURE MUNICIPAL USE IoT CABINET
40'-0"
30'-0"
12.75"Ø
ARCHITECTURAL TRANSITION SHROUD (UPPER & LOWER)
METER PER XCEL
EQUIPMENT CABINET 20"Ø 60" HEIGHT
UTILITY ACCESS & SERVICES DISCONNECT
COVERED ANCHOR BOLTS 20"Ø BASE 23.5"Ø BOLT CIRCLE
FIBER SPLICE/PULL & ALTERNATIVE SERVICE BOXES
ELECTRICAL CONDUIT
STANDARD 36"Ø CAISSON APPROX 90" BURY DEPTH (BASED ON LOCAL SITE CONDITIONS)
16.0"
4G/5G READY ANTENNA SHROUD BAYS
LUMINAIRE & LIGHT ARM (OPTIONAL)
UPPER EQUIPMENT CABINET
FUTURE MUNICIPAL USE IoT CABINET
9'-3"
14'-4"
12'-10"
40'-0"
ARCHITECTURAL TRANSITION SHROUD (UPPER & LOWER)
CARRIER EQUIPMENT ACCESS DOOR
METER PER XCEL
UTILITY ACCESS & SERVICES DISCONNECT
STANDARD 36"Ø CAISSON APPROX 90" BURY DEPTH (BASED ON LOCAL SITE CONDITIONS)

Unacceptable streetlight small cell collocation. This installation has short transitions between the different sections. The base cabinet should be round to match the pole and size in an aesthetically pleasing proportion. All wiring is to be concealed with no exposed equipment. Coloring between the different equipment items should be consistent or as directed by the City.

VI. ATTACHMENTS TO UTILITY POLES

A. Purpose

This section of the Guidelines governs attachment of a small wireless facility to a utility pole.

B. Standards

1. A small wireless facility attachment should conform to the pole owner's attachment standards. Any attachment to a utility pole or utility line should first be approved by the owner(s) of the utility pole or line.

2. All associated equipment should be mounted on poles if allowed by the pole owner and the pole is capable of supporting it .

3. Wires serving the small wireless facility should be concealed within the hollow interior of the utility pole, or if concealment tis not technically feasible, flush mounted to an existing utility pole in an enclosed wire chase on which the facilities are collocated.

VIII. INSTALLATION OF FREESTANDING SMALL CELL POLE

A. Purpose

This section of the Guidelines is to be used when installing a freestanding small wireless facility installation, referred to as a small cell pole.

B. Standards

1. All small wireless facility carrier equipment excluding the antenna should be housed internal to an equipment cabinet at the base of the pole or hidden within the pole or cantenna. No provider equipment should be strapped or banded to the outside of the small cell pole.

2. The small cell components should be sized to be visually pleasing. For a pole to be considered visually pleasing, the transition between the equipment cabinet and the upper pole should be considered. A decorative transition should be installed over the equipment cabinet upper bolts or decorative base cover should be installed to match the equipment cabinet size.

3. All hardware connections should be hidden from view.

4. Small Cell Poles should coordinate with neighborhood pole style, color, and material type, matching aesthetics of adjacent poles, except where directed otherwise by the Planning Board, but may have larger diameter to internally conceal equipment.

5. A base containing equipment should be round with a preferred diameter of the base cabinet of 18 inches and a maximum 24-inch diameter. The meter should be contained in an equipment cabinet as approved by National Grid.

6. Ownership of small cell poles is to remain with the provider.

7. At least 15% of the pole design structural capacity should be reserved for future City installations.

8. All new poles should have appropriate clearance from existing utilities.

9. Small Cell Poles should have a smooth transition from the upper pole to the cantenna or 5G antenna.

10. Wood poles should not be allowed on streets which do not currently have wooden utility poles.

C. Placement Requirements

1. Preferred location for new pole is generally on an extension of the side-yard property line at the intersection with the line of streetlights, utility poles, or trees in the ROW, to avoid interference with building face, views, business signage, pedestrian flow, etc.

2. Small Cell Poles placement should not impede, obstruct, or hinder pedestrian or vehicular travel.

3. Small Cell Poles should not be located along the frontage of a historic building, deemed historic on a federal, state, or local level.

4. Small Cell Poles should not significantly create a new obstruction to property sight lines.

5. Whenever possible, the freestanding small wireless facility should be located on the secondary street.

6. Small Cell Poles in the right-of-way should be located within the street amenity zone, whenever possible.

7. All new poles should be in line with adjacent utility or streetlight poles, and preferably be equidistant from them.

8. To minimize conflicts with trees, minimum distance standards will be established from tree canopy edge. Distances will vary based on the current age of the tree (which is based on diameter of trunk) in order to anticipate future tree growth. Distances will also depend on which side of the street the cell structures will be installed.

   a. Distance from canopy edge on utility pole side of street (where low-growing trees are planted)

Trunk Diameter	Distance from canopy edge
1 to 6”	20’
7 to 12”	15’
13” and up:	10’

   b. Distance from canopy edge on side of street free of utility poles (where tall-growing trees are planted)

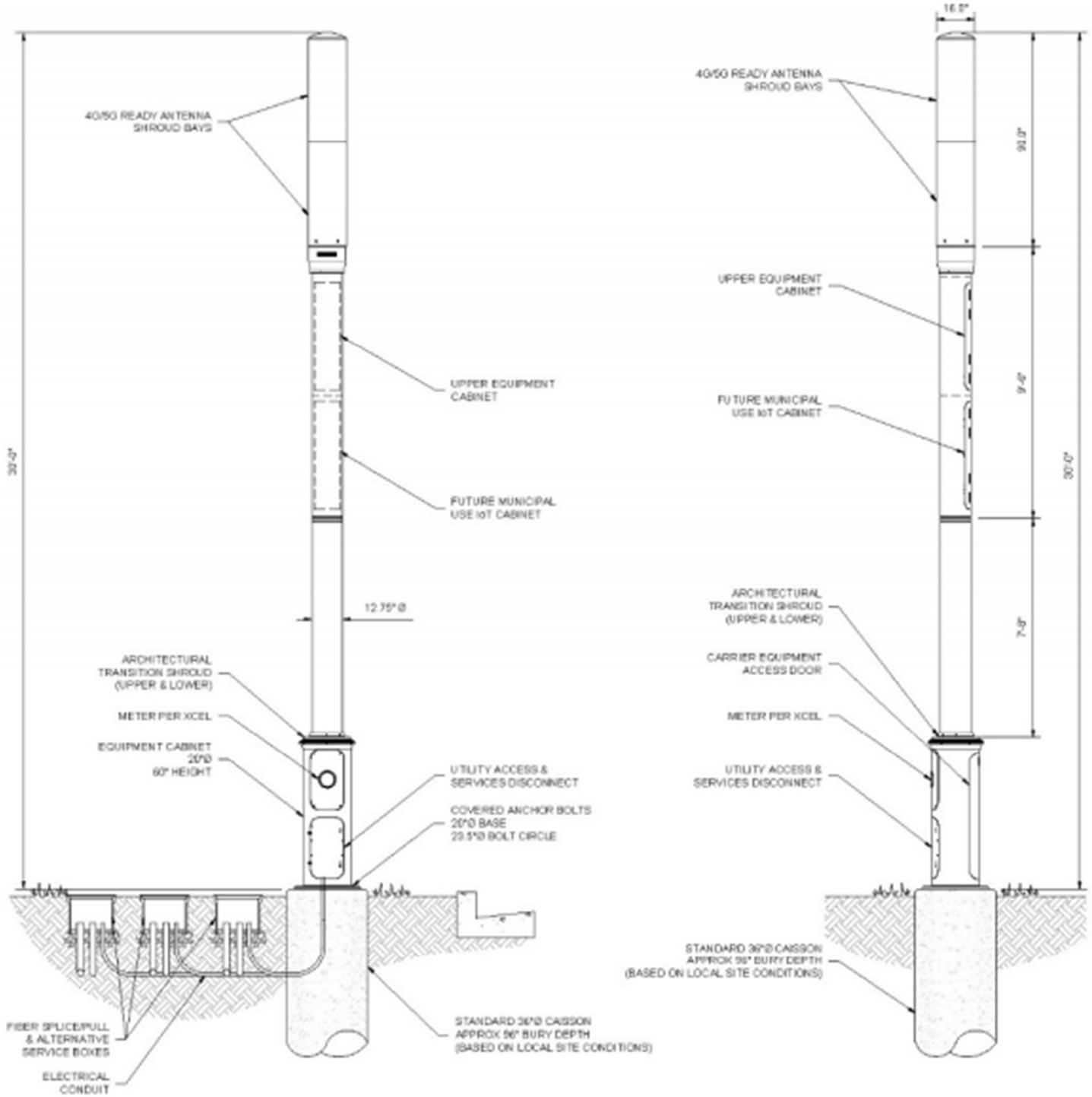
Trunk Diameter	Distance from

	canopy edge
1 to 6”	55’
7 to 12”	45’
13 to 18”	35’
18 to 24”	25’
24” and up	15’

Freestanding Small Cell Poles should not be placed on sites that are prime locations for tree planting due to soil quality, tree lawn width, and importance of tree canopy at this location to the community.

Small Cell Poles should be placed at an equal distance between trees and other poles when possible.

9. Small Cell Poles should not be installed between the perpendicular extension of the primary street-facing wall plane of any single- or two-family residence and the street.
10. When located adjacent to a commercial establishment, such as a shop or restaurant, small cell poles should not be located in front of store front windows, primary walkways, primary entrances or exits, or in such a way that would impede a delivery to the building.
11. Small Cell Poles should be at least 5’ from driveways, entrances or private lead walks to buildings, and bus shelters.
12. Small Cell Poles should be placed outside of the applicable sight triangle at intersection corners.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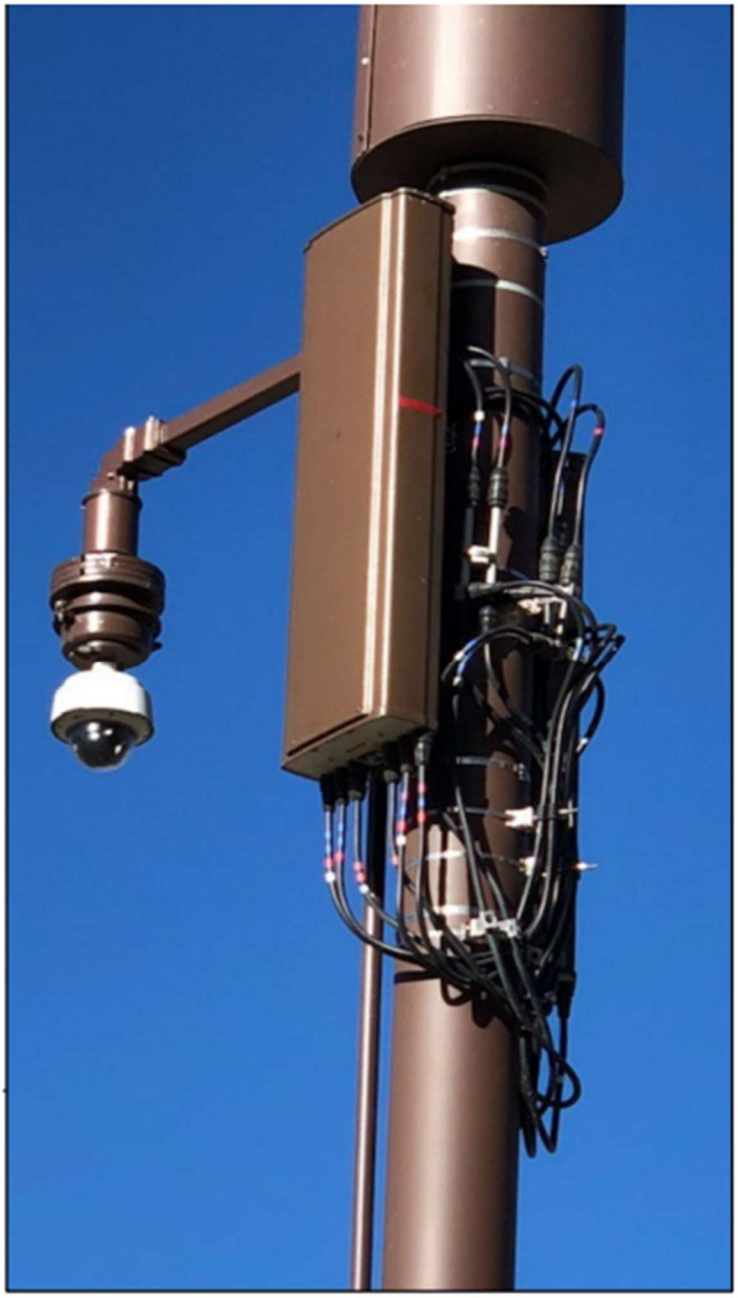
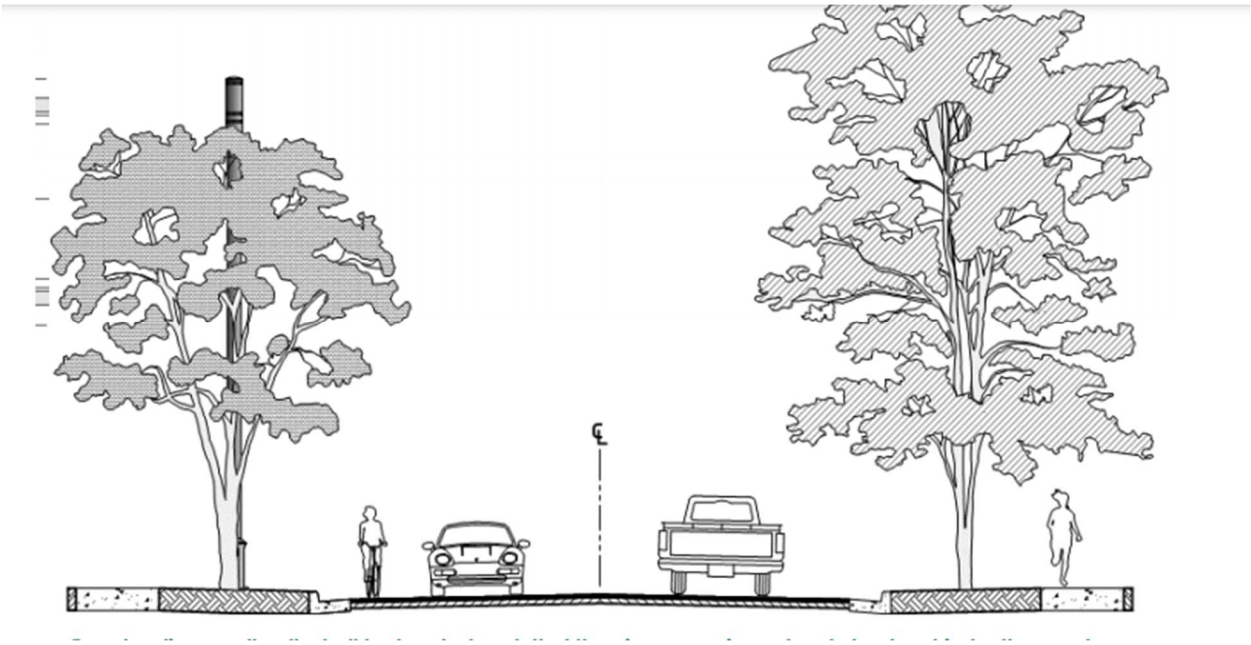


Unacceptable freestanding small cell pole.



Freestanding small cells should be located such that they in no way impede, obstruct, or hinder the usual pedestrian or vehicle travel, affect public safety, obstruct the legal access to or use of the public ROW, violate applicable law, violate or conflict with district requirements, violate the Federal Americans with Disabilities Act of 1990, or in any way create a risk to public health, safety or welfare. Free standing small cells should be located within the ROW and off set from the sidewalk as shown above.