



# Powell

— OHIO —

## Small Cell Design Guidelines

# CITY OF POWELL SMALL CELL DESIGN GUIDELINES

A Supplement to Chapter 931 of the Codified Ordinances, City of Powell, Ohio

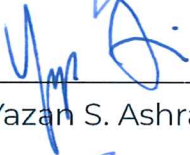
As Approved by the City of Powell, Ohio  
March 31, 2023



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# TABLE OF CONTENTS

- 1. INTRODUCTION
  - 1.1 Background.....5
  - 1.2 Purpose and Intent.....5
  - 1.3 Applicability.....6
  
- 2. DESIGN GUIDELINES FOR WIRELESS SUPPORT STRUCTURES
  - 2.1 New Small Cell Facilities and Wireless Support Structures.....9
  - 2.2 Colocations on Existing Wireless Support Structures.....13
  - 2.3 Wireless Support Structure Design Specifications.....16
  - 2.4 Remediation of City-Owned Wireless Support Structures and Sites.....17
  
- 3. DESIGN GUIDELINES FOR SMALL CELL ANTENNA AND ASSOCIATED FACILITIES
  - 3.1 Small Cell Antenna and Equipment Location Guidelines.....19
  - 3.2 Small Cell Antenna and Equipment General Guidelines.....23
  
- 4. REQUIRED APPLICATION MATERIALS
  - 4.1 Installation of Small Cell Facilities and/or Wireless Support Structures.....29
  - 4.2 Removal of Wireless Support Structures and/or Small Cell Facilities.....31
  
- 5. APPENDIX
  - 5.1 Definitions.....33
  - 5.2 Standard Drawings.....34

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# CHAPTER 1:

## INTRODUCTION

## SECTION 1.1 BACKGROUND

- Ohio House Bill 478 (“HB 478”) modified a previously adopted law regarding wireless service and the placement of small cell facilities and wireless support structures in city rights-of-way. It was passed on April 11, 2018, signed by the governor on May 2, 2018 and effective as of August 1, 2018. The law is intended to promote the rapid deployment of small cell facility infrastructure within the right-of-way by ensuring that municipalities grant or deny consent to install, operate, modify, or replace wireless facilities in a timely manner. The law recognizes the authority of a municipality to manage access to, and occupancy of, rights-of-ways to the extent necessary with regard to matters of local concern. This includes the protection of the integrity of residential and historic areas and ensures that the use of the rights-of-way in such districts is technologically and aesthetically appropriate.
- The City of Powell adopted Ordinance No. 2022-12 on May 23, 2022. It established Chapter 931 - Small Cell Facilities and Wireless Support Structures with the Right-of-Way to align with the new state requirements. This chapter establishes general procedures and standards for the siting, construction, installation, collocation, modification, operation and removal of small cell facilities and wireless support structures within the City’s rights-of-way.

## SECTION 1.2 PURPOSE AND INTENT

The purpose and intent of the Small Cell Design Guidelines is:

- To balance the deployment of small cell facilities and associated wireless support structures in the public right-of-way and on City-owned poles that allow small cell facility operators to provide fast, reliable coverage and capacity, while preserving the character, aesthetics, and design of Powell’s streetscapes;
- To promote the availability of a wide range of utility, communication, and other services to City residents at reasonable costs, including the rapid implementation of new technologies and innovative services;
- To ensure that structures and facilities within the public right-of-way protect the health, safety, and welfare of the public by minimizing and reducing impacts to surrounding land uses and to the City, its residents and visitors;
- To foster partnerships to expedite the installation and operation of small cell facilities in order to enhance wireless service for commercial and residential users in the City.

## SECTION 1.3 APPLICABILITY

- The following Design Guidelines, and the provisions of Chapter 931 of the Codified Ordinances, are applicable to all requests for small cell facilities and wireless support structures within all public rights-of-way in the City of Powell.
- Unless otherwise noted all of the design guidelines and requirements shall be met unless the applicant demonstrates with clear evidence that it is not technically feasible.
- Definitions for terms, phrases, words, and their derivations used in these Design Guidelines shall have the same meanings as provided in Chapter 931 of the Codified Ordinances of the City of Powell, Ohio.
- Full descriptions of the permit application types along with details regarding the application process and timeframes are provided in Chapter 931 of the Codified Ordinances of the City of Powell, Ohio.
- These Design Guidelines may be amended from time to time in accordance with the Codified Ordinances of the City of Powell.

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# CHAPTER 2:

## WIRELESS SUPPORT STRUCTURE DESIGN GUIDELINES



**SECTION 2.1  
NEW WIRELESS SUPPORT STRUCTURES**

**2.1.1 Height**

**A. Height Preference**

It is the City’s preference that the height of all new wireless support structures is consistent with other poles in the vicinity.

**B. Maximum Permitted Height**

- The maximum permitted height for newly constructed small cell facilities and wireless support structures, including antennas shall not exceed 40 feet in height above established grade as measured at the base of the wireless support structure, except as provided below.
- The maximum permitted height for newly constructed small cell facilities and wireless support structures, including antennas shall not exceed 35 feet in height above established grade as measured at the base of the wireless support structure in areas meeting the following criteria:
  - The area is within 300 feet of the proposed site for a new wireless support structure in the same or connecting rights-of-way, and there are no existing wireless support structures or utility poles greater than 30 feet in height above ground level;
  - The maximum permitted height for building construction in the underlying zoning district is 35 feet in height above ground level or less.

**2.1.2 Spacing**

**A. Minimum Spacing Requirements**

- Between proposed and existing privately-owned wireless support structures:
  - The minimum distance between a new wireless support structure and associated small cell facilities and any other existing, or permitted but unconstructed, wireless support structures and small cell facilities on the same side of the right-of-way at the time a complete application is filed, shall be not less than 300 linear feet, as measured parallel to the right-of-way, irrespective of the service provider.
- Between proposed wireless support structures and existing publicly-owned wireless support structures along the same side of the right-of-way, including but not limited to street light and sign poles:
  - New wireless support structures should be located midway between existing publicly-owned wireless support structures to the maximum extent possible.

**B. Multiple Requests in Violation of Spacing Requirements**

If multiple requests are received to install two or more wireless support structures that would violate the applicable spacing requirements, or to collocate two or more small cell facilities on the same wireless support structure, notwithstanding division (I) of §4939.0313 of the Ohio Revised Code, the city may resolve conflicting requests through whatever reasonable and nondiscriminatory manner it deems appropriate.

## SECTION 2.1 NEW WIRELESS SUPPORT STRUCTURES

### 2.1.2 Spacing, Cont'd.

#### C. City Proposed Alternative Location

- The city may propose an alternate location to any proposed location of a new wireless support structure, subject to the following:
  - The alternate location is within 100 feet of the proposed location; or
  - The alternate location is within a distance equivalent to the width of the right-of-way in which the new wireless support structure is proposed, whichever is greater; and
  - The operator shall use the alternate location if it has the right to do so on reasonable terms and conditions and the alternate location does not impose technical limitations or additional costs.

#### D. Waiver to City-Directed Alternate Location or Undergrounding Requirements

- Small cell operators may seek a waiver of the undergrounding or alternative location requirements for the placement of a new wireless support structure if the operator is unable to achieve its service objective using a small cell facility under the following circumstances:
  - From a location in the right-of-way where the undergrounding or placement prohibition does not apply;
  - In a utility easement within the right-of-way the operator has the right to access; or
  - In or on other suitable locations or structures made available by the city at reasonable rates, fees, and terms.

### 2.1.3 Setbacks

#### A. Minimum Setbacks from Travelways

- Equipment shall be placed so as not to impede or impair public safety or the legal use of the right-of-way by the traveling public.
- In no case shall any portion of new wireless support structure be located less than 2 feet from the travel way, edge line, face of curb, sidewalk, bike lane, or shared-use path. (See **A** at *Figure 2.1A*)

#### B. Minimum Setbacks from Existing Objects in the Right-of-Way

New wireless support structures shall be located a minimum of 12 feet from any permanent object or existing lawful encroachment in the right-of-way to allow for access. (See **B** at *Figure 2.1A*)

#### C. Minimum Setbacks from Intersections and Driveway Aprons

- Wireless support structures shall be located a minimum of 12 feet from driveway aprons, as measured from the closest point of the apron parallel to the right-of-way. (See **C** at *Figure 2.1A*)
- Wireless support structures should be located outside of intersection sight distance triangles to avoid obstruction of motorists' sightlines or pedestrian access.

#### D. Minimum Setbacks from Street Trees and Trees on Private Property

Wireless support structures shall be sited outside of the critical root zone of existing street trees and trees on private property as defined by The International Society of Arboriculture.

**SECTION 2.1  
NEW WIRELESS SUPPORT STRUCTURES**

**E. Wireless Support Structure Siting Preferences Relative to other Streetscape Elements**

- All new facilities and/or equipment and other related improvements must be placed within the amenity zone of the streetscape.
- The centerline of new support structures should be installed in alignment with existing poles where present, or with street trees along the same side of the right-of-way to the maximum extent practicable.
- These siting preferences shall not supersede the required dimensional setbacks outlined in Section 2.1.3.

**F. Encroachments Prohibited**

No portion of a wireless support structure or small cell facility cabinet or enclosure may encroach at grade or within the airspace beyond the right-of-way or over the vehicular or pedestrian travelway.

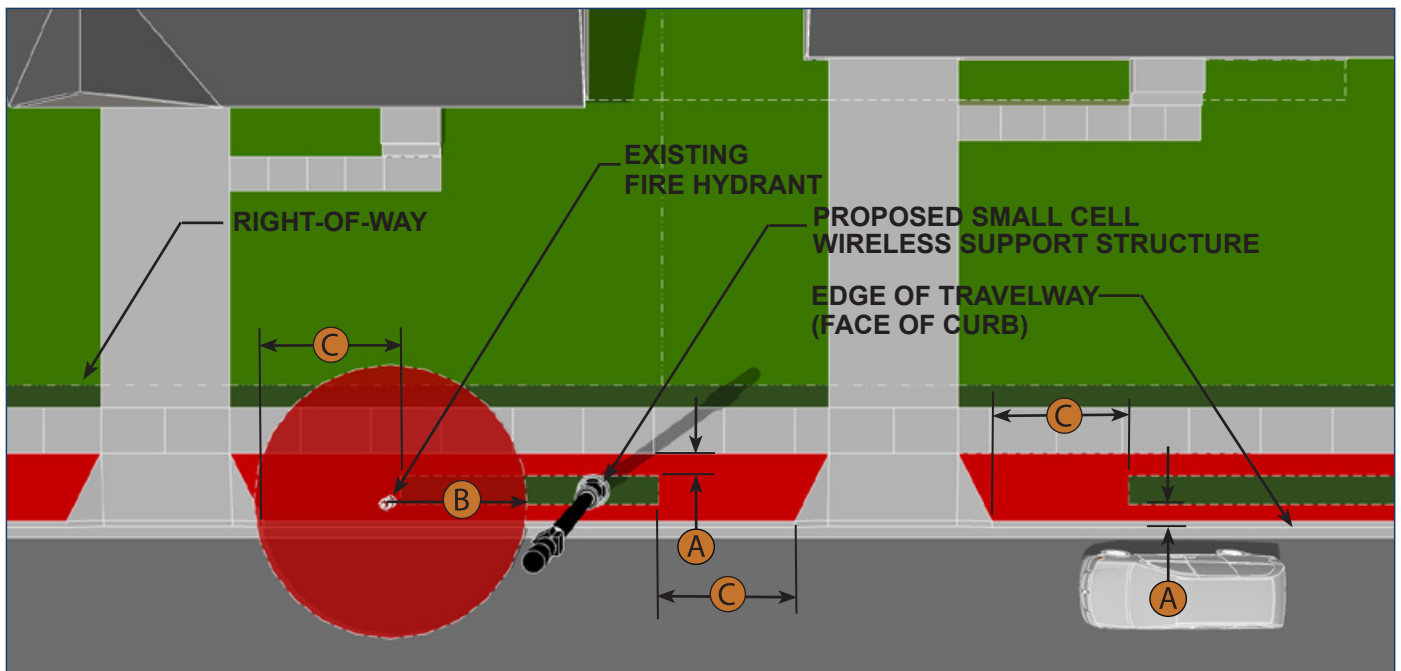


Figure 2.1A--Required Setbacks from Travelways, Existing Objects in the R.O.W., and Driveway Aprons

**SECTION 2.1  
NEW WIRELESS SUPPORT STRUCTURES**

**2.1.4 Context Specific Siting Preferences**

**A. Siting Preferences Adjacent to Residential Land Uses:**

- When adjacent to residential land uses, wireless support structures should be sited as close as practicable in alignment with adjacent side or rear property lines perpendicular to the right-of-way, or with shared/demising wall locations in multi-tenant structures such as townhomes or apartments to avoid building frontages and the field of view of residents. (See Figure 2.1B and 2.1C)
- In no case shall a new wireless support structure be sited in conflict with neighborhood identification signs or entry features.
- These siting preferences shall not supersede the required dimensional setbacks outlined in Section 2.1.3.

**B. Siting Preferences Adjacent to Non-Residential Land Uses**

- When adjacent to all other land uses, wireless support structures should be sited as close as practicable in alignment with adjacent side or rear property lines perpendicular to the right-of-way.
- When adjacent to non-residential land uses, wireless support structures should be sited away from entrances and storefront windows.
- Wireless support structures should be sited as close as practicable in alignment with demising walls in multi-tenant buildings.

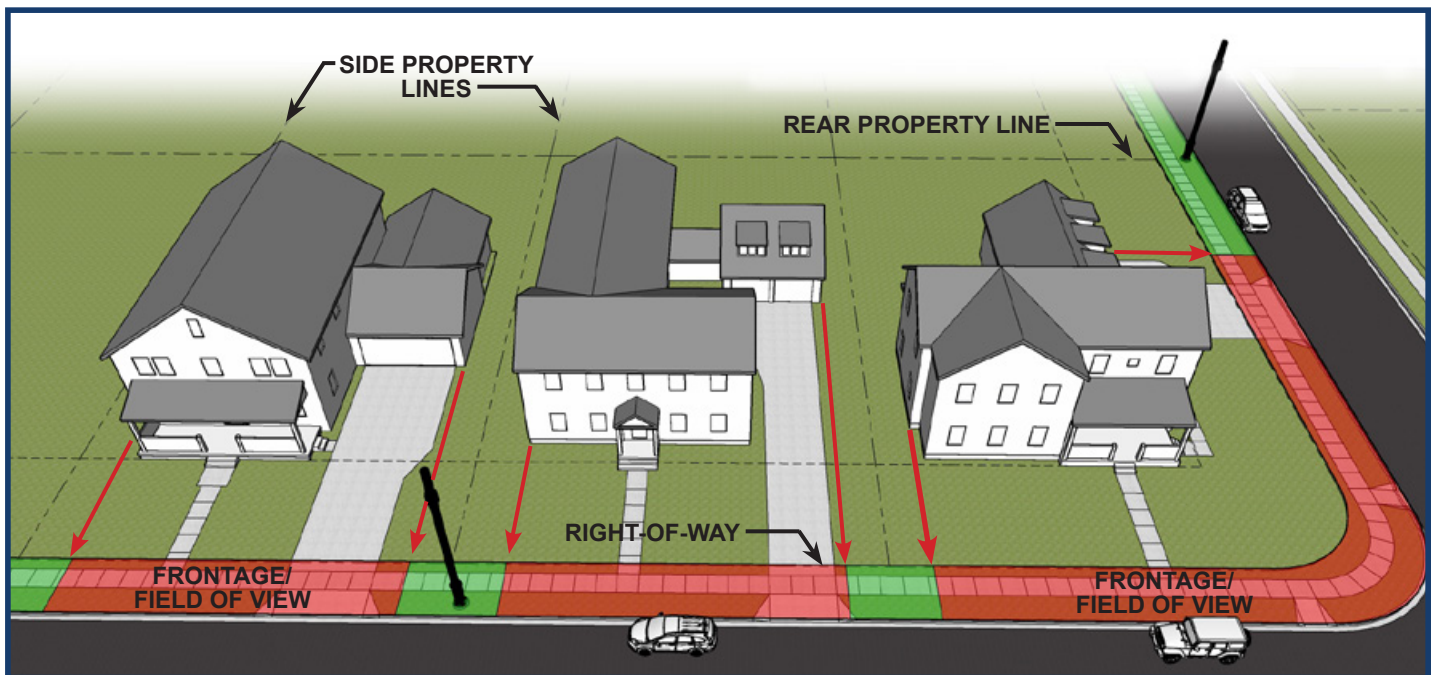


Figure 2.1B--Siting Preferences Adjacent to Detached Residential Land Use

**SECTION 2.2**

**COLOCATIONS ON EXISTING WIRELESS SUPPORT STRUCTURES**

**2.2.1 Colocations Discouraged**

The colocation of wireless facilities on existing support structures not constructed for the express purpose of supporting small cell wireless facilities is strongly discouraged, except for colocations between two separate wireless service providers on the same support structure whenever feasible and safe.

**2.2.2 Maximum Permitted Height**

Antennas, small cell facilities and any associated concealment materials shall not increase the overall height of the existing wireless support structure by more than 5 feet.

**2.2.3 Use of Privately-Owned Utility Poles**

There are a number of existing private utility poles located within the right-of-way throughout the City of Powell. These support structures may be eligible for colocations of small cell facilities and/or provision of electric service pending permission of the legal owner of the structures, and subject to the following:

**A. Private Owner Permission Required.**

Documentation of owner’s permission to collocate small cell facilities must be included with the application materials in the form of a letter or other correspondence/documentation.

**B. Applicable Standards.**

If the owner of the structure requires more restrictive standards than those in these Design Guidelines, the more restrictive standards shall apply.

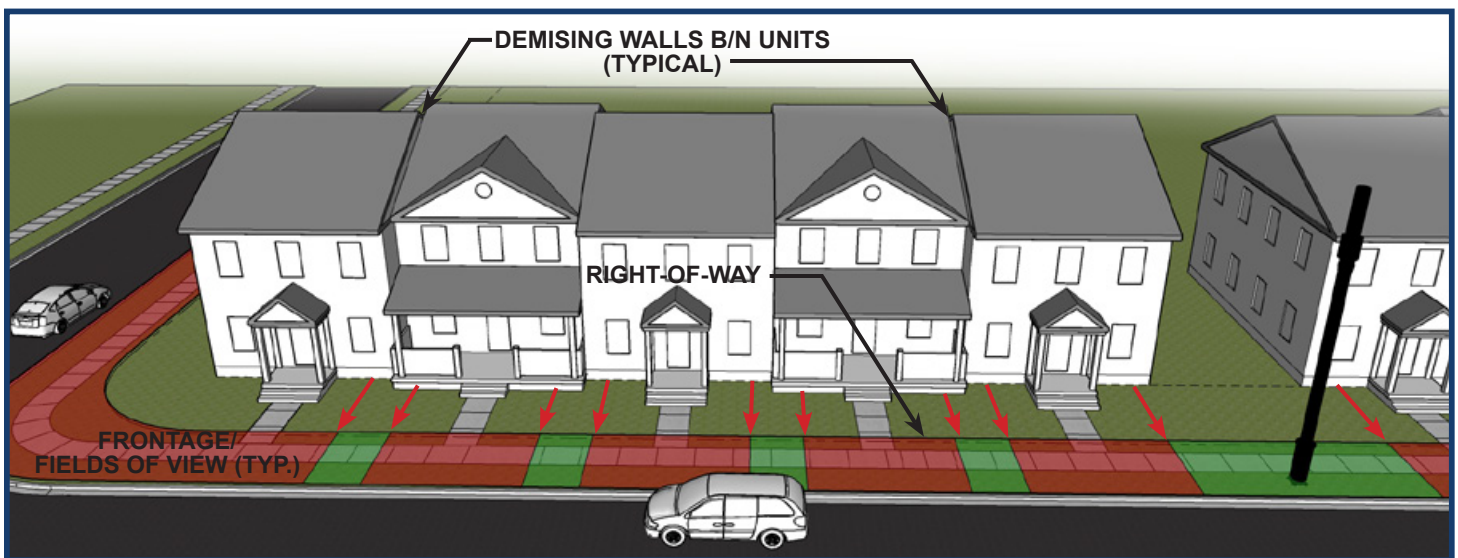


Figure 2.1C--Siting Preferences Adjacent to Attached Multi-Family Residential Land Use

## SECTION 2.2

### COLOCATIONS ON EXISTING WIRELESS SUPPORT STRUCTURES

#### 2.2.3 Use of Privately-Owned Utility Poles, Continued

##### C. Antenna Mounting Requirements.

Where possible, antenna(s) shall be installed consistent with the requirements of Section 3.2.1. Where existing conditions preclude this mounting location, antennas shall be fully enclosed within shroud(s) attached as near as possible to the top of the pole.

##### D. Wiring, Cables and Conduit Requirements.

- All wiring and cables shall be firmly secured to the support structure and enclosed within a separate rigid external conduit/service riser attached directly to the pole or offset not more than 4 inches by mounting brackets. Conduit or riser color shall match the utility pole color.
- Spools and/or coils of excess fiber optic or cables or any other wires shall not be stored on the pole except completely within the approved enclosures or cabinets.

##### E. Color.

All small cell facilities, cabinets, shrouds, conduit, and mounting hardware proposed in conjunction with installation shall be powder-coated to match the color of the pole to the maximum extent practicable or as otherwise approved by the Zoning Administrator.

#### 2.2.4 City-Owned Wireless Support Structures Unpermitted for Colocation

The City of Powell reserves the right to deny colocations on city-owned support structures that may negatively impact the structural integrity of the associated infrastructure, or may result in interference with the safe operation of traffic signals. This limitation includes, but is not limited to street lights and traffic signal support structures and mast arms.



Figure 2.2A--Downtown Street Lights



Figure 2.2B--Typical Neighborhood Street Light

## COLOCATIONS ON EXISTING WIRELESS SUPPORT STRUCTURES

**2.2.5 Use of City-Owned Support Structures**

In circumstances where permission for collocation will be considered by the City of Powell on city-owned support structures, the following conditions apply:

**A. Modification or Replacement of Wireless Support Structure**

- The city may condition approval of the collocation on replacement or modification of the wireless support structure at the operator's cost if the city determines that replacement or modification is necessary for compliance with the city standards.
- A replacement or modification of the wireless support structure shall conform to all applicable design guidelines and city specifications for the type of structure being replaced.
- The city may retain ownership of a replacement wireless support structure.

**B. Independent Power Supply and Fiber Optic Communication Sources Required**

- Small cell facilities may not use the same power or communication source providing power and/or communication to the existing facility original to the purposes of the support structure.
- The independent power source must be contained within a separate conduit inside the support structure.
- The applicant shall coordinate, establish, maintain and pay for all power communication connections with private utilities.

**C. Utility Undergrounding Required**

All service lines from the power source to the small cell facilities and wireless support structure shall be located underground.

**D. Wiring, Cables and Conduit Requirements**

- All wiring and cables must be housed within the aluminum support structure or pole and extended vertically within a flexible conduit.
- Spools and/or coils of excess fiber optic, coaxial cables or any other wires shall not be stored on the pole except completely within the approved enclosures or cabinets.
- Exposed wires, cables, connections and external conduit are prohibited.
- Underground conduit shall meet City of Powell specifications.

**2.2.6 City's Right to Reserve Space**

The city may reserve space for future public safety or transportation uses in the right-of-way or on a city owned wireless support structure in a documented and approved plan in place at the time an application is filed.

- A reservation of space shall not preclude placement of a pole or collocation of a small cell facility.
- If replacement of the wireless support structure is necessary to accommodate the collocation and the future use, the operator shall pay for and install the replacement of the wireless support structure, which must accommodate the future use.

## SECTION 2.3

### GENERAL WIRELESS SUPPORT STRUCTURE/POLE SPECIFICATIONS

#### 2.3.1 Pole Specifications

##### A. Height & Dimensions

- Maximum permitted pole height is regulated under Section 2.1.
- Pole diameter shall be consistent with the surrounding poles. The applicant shall consider other poles in the vicinity, the built environment, the neighborhood character, the over site appearances, and the purposes of these guidelines when determining pole appearance.
- Wireless support structures incorporating small cell facilities and equipment within a concealment pole and base cabinet, or 'smart pole', shall utilize poles having a consistent outside diameter. In no case shall the maximum diameter of the pole exceed 14 inches in diameter, exclusive of the base cabinet.

##### B. Pole Material & Fabrication

All new wireless support structures shall be constructed of solid hot-dipped aluminum, be round in cross section with a smooth pole shaft, or as otherwise approved by the Zoning Administrator.

##### C. Color

To ensure consistency among right-of-way infrastructure, color for all wireless support structures and bases shall be powder-coated black or as otherwise approved by the Zoning Administrator.

##### D. Pole Foundation & Anchoring

- All new wireless support structures shall be mounted to a concrete foundation in a breakaway design by a professional engineer licensed and registered in the State of Ohio, and subject to the City Engineer's review and approval.
- Anchor bolts must be constructed from high strength steel and in a length and diameter determined, stamped, sealed and signed by a professional engineer licensed and registered in the State of Ohio, and subject to City Engineer review and approval.
- All anchor bolts must be concealed from public view, with an appropriate pole boot or cover, powder coated to match the pole color.



REMEDIATION OF CITY-OWNED SUPPORT STRUCTURES AND SITES

**2.4.1 Required Remediation**

**A. Right-of-Way Remediation**

Following removal, the applicant shall restore all areas of the right-of-way impacted by the small cell facilities and/or wireless support structure installation and/or removal to a condition that is equal to or better than the existing right-of-way standard condition in the area.

**B. City-Owned Support Structure Remediation**

All city-owned support structures must be returned to an equal or better condition, upon removal of small cell facilities. All mounting hardware and equipment must be removed from the site. All holes left in the pole must be neatly sealed from any moisture intrusion and painted to match the pole.

**C. Surety Bond Required**

A surety bond in the amount of \$5,000.00 per application for Small Cell Wireless Support Structures and Associated Facilities is required to ensure that any and all remediation is completed to the satisfaction of the City of Powell.

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# CHAPTER 3:

## SMALL CELL ANTENNA AND EQUIPMENT DESIGN GUIDELINES

SECTION 3.1

SMALL CELL ANTENNA & EQUIPMENT LOCATION GUIDELINES

**3.1.1 Small Cell Equipment Integrated within Wireless Support Structures**

**A. Small Cell Equipment Encouraged within Wireless Support Structures**

The most preferred location for small cell equipment and facilities is fully integrated within a base cabinet and/or within the wireless support structure. This design is alternately referred to as an integrated small cell pole, a multi-chamber pole, or a smart pole design. See *Figures 3.2A, 3.2B and 3.2C* for existing examples within the City of Powell.

**B. Size**

Equipment base cabinets shall have a maximum width or outside diameter of 24 inches, and a maximum height of 66 inches, or 5.5 feet. (See *Figure 5.2A*)

**C. Siting Requirements**

Small cell facilities within pole base cabinets and associated wireless support structures are prohibited to be located within sight visibility triangles unless approved by the City Engineer or designee.

**D. Design Specifications**

- Transition from Base Cabinet to Pole.
  - A decorative transition or cover shall be installed over the equipment cabinet upper bolts to match the equipment cabinet size and color. The top of the cabinet shall have no flat horizontal area greater than 2 inches as measured outward from the pole to prevent objects from being placed on top a base cabinet. (See *Figure 5.2A*)
- Breakaway Design.
  - The base cabinet shall be mounted to foundation with a break-away design.



*Figure 3.2A--Existing Small Cell Facility at Bennett Parkway and Briarbend Boulevard*



*Figure 3.2B--Existing Small Cell Facility at Bennett Parkway and Weatherburn Drive*



*Figure 3.2C--Existing Small Cell Facility at Valley Run Drive and Powell Road*

## SECTION 3.1

### SMALL CELL ANTENNA & EQUIPMENT LOCATION GUIDELINES

#### 3.1.2 Ground-Mounted Small Cell Equipment

##### A. Height

The maximum permitted height for ground-mounted equipment cabinets shall not exceed 4 feet as measured from established grade at the foundation/pad to the top of the cabinet.

##### B. Siting Requirements

- Equipment in an environmentally controlled underground vault may be required in some areas where technologically feasible and appropriate for the location.
- So as not to impede or impair public safety or the legal use of the right-of-way by the traveling public, in no case shall a ground-mounted small cell facility cabinet be located closer than two feet from the travelway, edge line, face of curb, sidewalk, bike lane, or shared-use path as measured to the nearest part of the wireless support structure. (See *Figure 2.1A*)
- Ground-mounted small cell facility cabinets shall be located a minimum of 12 feet from any permanent object or existing lawful encroachment in the right-of-way to allow for access. (See *Figure 2.1A*)
- Ground-mounted small cell facility cabinets shall not be sited in conflict with required intersection sight distance triangles.
- Ground-mounted small cell facility cabinet locations shall be located a minimum of 12 feet from driveway aprons as measured parallel to the right-of-way. (See *Figure 2.1A*)

##### C. Design Specifications

- Attachment to Foundation/Slab.
  - Cabinets must be secured to a concrete foundation or slab with a break-away design.
- Owner Identification.
  - A 4 inch by 6 inch (maximum) plate with the carrier's name, location, identifying information, and emergency telephone number shall be permanently fixed to the cabinet.

##### D. Landscape Screening

- Screening of small cell facility cabinets with evergreen plant material is required, consistent with the landscape character of the surrounding area.
- All landscaping proposed within the right-of-way shall be reviewed for appropriateness of the proposed planting plan and plant specifications by the City of Powell.

## SECTION 3.1

## SMALL CELL ANTENNA &amp; EQUIPMENT LOCATION GUIDELINES

**3.1.3 Small Cell Equipment Mounted to Wireless Support Structures****A. Pole-Mounted Equipment Discouraged**

Pole-mounted equipment is strongly discouraged, and is the least preferred location for small cell equipment and facilities. Unless required to be within an environmentally controlled underground vault, ground mounted equipment is required unless the applicant shows clear and convincing evidence that the equipment must be pole-mounted. Increased costs alone shall be presumed to be an insufficient reason.

**B. Concealment of Pole-Mounted Equipment**

- When pole-mounted equipment is either permitted or required, the equipment must be concealed within a single shroud or cabinet and must contain all the equipment associated with the facility other than the antenna including but limited to, the electric meter and disconnect switch.
- All cables and conduits associated with the equipment must be concealed from view, routed directly through the interior of the metal pole and be underground between the pole and the ground mounted cabinet. Wood poles must use conduit to conceal cables and wires from view.

**C. Size**

Small cell equipment enclosures should be the smallest size practicable to house the necessary small cell facilities and equipment. In no case shall the total volume of pole mounted small cell equipment cabinets exceed 10 cubic feet, and no single cabinet shall exceed 3 cubic feet.

**D. Required Enclosure Mounting Location**

All small cell facilities and equipment enclosures shall be mounted on the side of the pole opposite the direction of vehicular traffic of the adjacent roadway. Enclosures shall extend perpendicular from the pole and parallel to the right-of-way.

**E. Maximum Permitted Protrusion of Enclosure from Wireless Support Structure Pole**

- Small cell equipment enclosures shall not protrude more than 18 inches beyond the face of the pole to the outermost portion of the enclosure.
- Small cell equipment enclosures should be installed as flush to the wireless support structure pole as practical. In no case shall an enclosure be installed more than four inches from the wireless support structure/pole.

**F. Required Arrangement of Multiple Small Cell Facility Cabinets**

- All pole-mounted equipment must be installed as flush to the pole as possible.
- Where multiple enclosures are proposed on a wireless support structure pole, the enclosures shall be grouped as closely together as possible on the same side of the pole.

## SECTION 3.1

### SMALL CELL ANTENNA & EQUIPMENT LOCATION GUIDELINES

#### 3.1.3 Small Cell Equipment Mounted to Wireless Support Structures, Cont'd.

##### G. Design Specifications

- Shape.
  - Small cell equipment enclosures shall be cylindrical or rectangular in shape, and should be no wider than the maximum outside diameter of the pole to which it is attached, to the maximum extent possible.
- Attachment.
  - The shroud enclosure shall be securely strapped to the wireless support structure pole using stainless steel banding straps. Through bolting or use of lag bolts on publicly owned wireless support structures is prohibited. New wireless support structures may utilize mounting brackets in accordance with the maximum horizontal offset requirements. Care should be taken to integrate the mounting hardware into the enclosure design.
- Concealment of Gap.
  - Metal flaps or “wings” shall extend from the enclosure to the pole to conceal any gap between the enclosures and the pole. The design of the flaps shall be integrated with the design of the enclosure.

## SECTION 3.2

## SMALL CELL ANTENNA AND EQUIPMENT GENERAL GUIDELINES

## 3.2.1 All Antenna

## A. Overall Maximum Size

- Each antenna shall be located entirely within a shroud enclosure of not more than 6 cubic feet in volume.
- The maximum dimensions for panel style antennas shall be 30" high and 12" wide. The maximum dimensions for canister style antennas shall be 30" high and 16" in diameter.

## B. Shroud/Enclosure

- Antenna shall be completely housed within a cylindrical or generally rectangular shroud that is capable of accepting paint to match the wireless support structure.
- Concealment of radio modules and antennas within the same shroud is encouraged to limit the extent of pole mounted small cell equipment and visual clutter in the right-of-way.

## C. Color

To ensure consistency among right-of-way infrastructure, color for all antennas and shrouds shall be powder-coated black, or as approved by the Zoning Administrator.

## 3.2.2 Single, Cylindrical Antenna &amp; Shrouds

## A. Mounting Location

- Single, cylindrical antennas shall be mounted to the top of the wireless support structure (pole), aligned with the centerline of the pole.
- If colocated on a private utility pole where mounting to the top of the pole is precluded by existing infrastructure, single cylindrical antennas may be offset from the pole with a sidearm mount to avoid conflicts with existing infrastructure mounted to the utility pole.

## B. Design Specifications

- The outside diameter of the cylindrical antenna or antenna enclosure should not exceed the outside 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.
- In no case shall the maximum outside diameter of the shroud be wider than one and one half times the outside diameter of the top of the pole.
- A conical shroud shall be incorporated into the design to screen the area of attachment of the antenna to the top of the pole and associated wiring or cabling connections.

## SECTION 3.2

### SMALL CELL ANTENNA AND EQUIPMENT GENERAL GUIDELINES

#### 3.2.2 Multi-Sector Antenna and Shrouds

##### A. Mounting Location

Multi-sector antenna shall be mounted as near to the top of the wireless support structure as practicable

##### B. Shroud/Enclosure

- Multi-sector antennas may be housed within a single shroud, generally cylindrical in shape and mounted on top of the pole in alignment with the centerline of the pole (See *Figures 5.2A-C*)
- Multi-sector antennas may be installed as individually shrouded units, mounted to the exterior of the pole in a radiating pattern from the centerline pole and with equal spacing between antennas.

##### C. Design Specifications

- Each antenna in the array should be installed as close to the outside of the pole as possible, and no portion of the antennas or shrouds shall extend beyond the outside of the pole more than 16 inches.
- No more than 3 individual antenna modules may be installed in an array on the exterior of the pole, one each per 120 degree sector radial to the pole.

#### 3.2.3 Colocation of Cylindrical and Multi-Sector Antenna

Where proposed, cylindrical antenna shall be located at uppermost point on pole in compliance with height regulations, with multi-sector antenna beneath in order to maximize the spatial capacity of the pole. (See *Figures 5.2A-C*)



### 3.2.4 General Design Guidelines for Small Cell Equipment

#### A. Maximum Size

Exclusive of the antenna, all wireless equipment associated with the small cell facility shall not cumulatively exceed 28 cubic feet in volume. The calculation of equipment volume shall not include electric meters, concealment elements, telecommunications demarcation boxes, grounding equipment, power transfer switches, cut-off switches, and vertical cable runs for the connection of power and other services.

#### B. Encroachments Prohibited

No portion of a wireless support structure or small cell facility cabinet or enclosure may encroach at grade or within the airspace beyond the right-of-way or over the travelway.

#### C. Screening and Installation Location.

- All small cell facilities, associated equipment and cabling shall be completely concealed from view within an enclosure/cabinet, and may be installed one or more of the in the following locations:
  - Within an equipment cabinet integrated within the base of a new wireless support structure;
  - Within a ground-mounted cabinet physically independent from the wireless support structure; or
  - Within individual pole-mounted cabinets or enclosures.

#### D. Noise Abatement

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

#### E. Color

- To ensure consistency among right-of-way infrastructure, color for all small cell facilities and enclosures/cabinets, integrated within the pole base, or ground-mounted cabinets shall be powder-coated black, or as approved by the Zoning Administrator.
- The color for all equipment and similar devices must match the existing pole and be consistent with other cabinet and pole colors in the general areas.

#### F. Owner Identification.

A 4 inch by 6 inch (maximum) plate with the carrier's name, location, identifying information, and emergency telephone number shall be permanently fixed to the cabinet on the side of the cabinet opposite the direction of vehicular traffic of the adjacent roadway.

## SECTION 3.2

### SMALL CELL ANTENNA AND EQUIPMENT GENERAL GUIDELINES

#### 3.2.4 General Design Guidelines for Small Cell Equipment, Cont'd.

##### G. Power Supply and Fiber Optic Connections (All Installation Types)

- Independent Power and Communication Sources Required
  - Small cell facilities located on city-owned wireless support structures may not use the same power or communication source providing power and/or communication for the existing facility original to the purposes of the support structure.
  - The independent power source must be contained within a separate conduit inside the support structure.
  - The applicant shall coordinate, establish, maintain and pay for all power and communication connections with private utilities.

##### H. Utility Undergrounding Required

All service lines from the power source to the small cell facilities and wireless support structure shall be located underground.

##### I. Wiring, Cables and Conduit Requirements

- All wiring and cables must be housed within the steel support structure or pole and extended vertically within a flexible conduit.
- Spools and/or coils of excess fiber optic or coaxial cables or any other wires shall not be stored on the pole except completely within the approved enclosures or cabinets.
- Underground conduit shall be as specified by the City of Powell Engineer

##### J. Other Small Cell Facilities Regulations

- Lighting
  - Unless otherwise required for compliance with FAA or FCC regulations, lighting associated with small cell facilities is prohibited. Any internal lights associated with electronic equipment shall be shielded from public view. The provisions in this subsection shall not be interpreted to prohibit installations of streetlights or the installation of luminaires on new poles when required.
- Signage
  - Signage is prohibited on all small cell facilities and wireless support structures, including stickers, logos, text, and other non-essential graphics and information other than the owner identification unless required by FCC.
- Radio Frequency (RF) Emissions Requirements
  - All small cell facilities and wireless support structures shall be designed, constructed, operated, and maintained in compliance with all generally applicable health and safety regulations, including without limitation all applicable regulations for human exposure to radio-frequency (RF) emissions.

**SECTION 3.2**  
**SMALL CELL ANTENNA AND EQUIPMENT GENERAL GUIDELINES**

- All facilities shall use the lowest visible RF warning sticker required by government or utility regulations. Placement of the RF sticker must be as close as possible to the antenna and face directly away from the street. ID stickers must use the lowest visibility sticker as possible and use colors that are consistent with or complementary to the color of the equipment cabinet and/or pole on which it is to be placed.
- Prohibited Wireless Facilities
  - Microwave, macro towers, and other wireless backhaul facilities are not permitted within the right-of-way.

# CHAPTER 4:

## REQUIRED APPLICATION MATERIALS

## SECTION 4.1

### REQUIRED APPLICATION MATERIALS FOR INSTALLATIONS

Unless otherwise required by state or federal law, or unless mutually agreed upon by the City of Powell prior to the submittal of an application, all applicants shall submit to the city the following materials and information associated with each application type in order for the application to be considered complete:

#### A. Completed Permit Application Form(s), Current Application Fee(s), and Surety Bond(s)

The permit application forms and current application fees and surety bond amounts are available through the City of Powell website.

#### B. Site Plan

At a scale not smaller than one inch equals twenty feet with dimensions, clearly indicating the following:

1. Proposed location within the right-of-way including nearest cross street intersection(s);
2. For parcels within 150 feet of the proposed small cell facility location, parcel identification number and property ownership as currently listed by the Delaware County auditor;
3. All existing conditions within 150 feet of the proposed location, including but not limited to, buildings, utilities within the right-of-way and associated above grade structures, location of electric service and fiber optic cable, all other underground and overhead utilities, wireless support structures (both with and without small cell facilities attached), ground-mounted small cell facilities, sidewalks/shared-use paths, back of adjacent curb/edge of pavement, driveways, and street trees;
4. Dimensions shall be provided from the proposed wireless support structure and/or small cell facility to existing wireless support structures and equipment, utility structures, back of curb/edges of pavement including driveways, sidewalks and shared-use paths;
5. Dimensions shall be provided between proposed wireless support structures and any associated ground-mounted equipment.

#### C. Inventory of Existing Small Cell Facilities and Wireless Support Structures

Provide an inventory of any existing and approved wireless support structures with collocated small cell facilities that are either within the jurisdiction or within one-half mile of the border of the city, with latitudinal and longitudinal location coordinates.

The city may share this information with other applicants seeking to locate small cell facilities and/or wireless support structures within the City of Powell. However, the city is not, by sharing this information, in any way representing or warranting that the sites are available or suitable. The inventory of each small cell facility and wireless support structure shall include:

1. A map showing each location, by address and/or parcel identification number, including straight-line distances between each facility;
2. Facility height and design; and
3. Facility owner(s)/operator(s)

## SECTION 4.1

### REQUIRED APPLICATION MATERIALS FOR INSTALLATIONS, CONT'D.

#### D. Wireless Support Structure Details

Plans, elevations, profiles and sections at a scale not smaller than one inch equals five feet, depicting existing wireless support structures for collocation requests and proposed new wireless support structures, as applicable and clearly indicating the following:

1. Height from established grade at the base of the wireless support structure to the highest point of the wireless support structure and the height to the highest point of proposed antenna or antenna enclosures, as applicable (overall height).
2. Height from established grade at the base of the wireless support structure to the lowest point of all proposed small cell equipment to be installed on the wireless support structure.
3. Outside diameter of upper poles, and for tapered poles the outside diameter as measured at the widest and narrowest points of the pole.

#### E. Small Cell Facilities Details

Plans, elevations, profiles and sections at a scale not smaller than one inch equals five feet, depicting existing small cell facilities and/or proposed small cell facilities clearly indicating the following, as applicable:

1. Height, width, depth and volume in cubic feet of all proposed antenna and exposed elements and/or proposed antenna shrouds.
2. Height, width, depth and volume of all other wireless equipment associated with the facility, with all electric meters, concealment elements, telecommunications demarcation boxes, grounding equipment, power transfer switches, cut-off switches, and vertical cable runs for the connection of power and other services clearly labeled.
3. The distance from the outer edge of small cell facility cabinet parallel to the outer edge of the wireless support structure for small cell facilities to be installed on a wireless support structure.
4. Method of installation/connection to pole or ground, as applicable.
5. Color specifications for all small cell facilities and wireless support structures and associated exposed equipment, cabinets and concealment elements.
6. Electrical plans and wiring diagrams.
7. Footing and foundation drawings and structural analysis sealed and signed by a professional engineer in the state of Ohio.

#### F. Manufacturer's Specification Sheets

Provide the most recent specification sheets from manufacturers for all small cell facility equipment and wireless support structures proposed, including but not limited to poles, equipment cabinets, shrouds, or concealment devices, antennas, meters, radios, switches, telecommunications demarcation boxes, and grounding equipment.

#### G. Landscape Plans

Where ground-mounted equipment cabinets are proposed, provide landscape plans at a scale not smaller than one inch equals ten feet, including planting details and a plant schedule indicating proposed plant species, quantities, spacing, and height/size at installation.

## **SECTION 4.2**

### **REQUIRED APPLICATION MATERIALS FOR REMOVAL**

For applications involving the removal of small cell facilities and/or wireless support structures, the following materials and information shall be provided:

#### **A. Small Cell Right-of-Way Permit application and fee as specified**

The permit application forms are available through the Department of Public Works, with all associated application fees noted on the application forms.

#### **B. Site Plan**

At a scale not smaller than one inch equals twenty feet with dimensions, clearly indicating the following:

1. Existing small cell facilities and/or wireless support structure locations within the right-of-way including nearest cross street intersection(s);
2. For adjacent parcel(s) perpendicular to the proposed small cell facility/wireless support structure location, property ownership, including current ownership;
3. All existing conditions within 50 feet of the existing small cell facilities locations to be removed, including but not limited to, buildings, utilities within the right-of-way and associated above grade structures, location of electric service and fiber optic cable, all other underground and overhead utilities, small cell structures and facilities, sidewalks/shared-use paths, back of adjacent curb/edge of pavement, driveways, street trees and plant material.

#### **C. Remediation Plans**

Site and/or structure remediation details at a scale not smaller than one inch equals five feet in accordance with the requirements of Section 4.4, and clearly indicating the following:

1. Proposed remediation plan for modifications made to city-owned wireless support structures and other areas of the right-of-way associated with collocation of small cell wireless facilities and ground-mounted equipment after the removal of these facilities.
2. Proposed restoration of electric and fiber optic connections after removal of small cell facilities, as applicable.

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# APPENDIX:

## DEFINITIONS AND STANDARD DRAWINGS



## SECTION 5.1 DEFINITIONS

### 5.1.1 General Use of Terms

In addition to the Definitions provided in Section 931.01 of the Codified Ordinances of Powell, Ohio:

- A. The following terms, phrases, words, and their derivations used in these Design Guidelines shall have the meanings given in this Section.
- B. When consistent with the context, words used in the present tense also include the future tense; words in the plural number include the singular number; and words in the singular include the plural number.
- C. All terms used in the definition of any other term shall have their meaning as otherwise defined in this Section or Section 931.01 of the Codified Ordinances.
- D. The word “shall” and “will” are mandatory and “may” is permissive.
- E. Words not defined in this Section or Section 931.01 of the Codified Ordinances shall be given their common and ordinary meaning

### 5.1.2 Defined Terms

- A. Amenity Zone means a portion of the public right-of-way, typically adjacent to the sidewalk, but outside the pedestrian walking area, including streetscape elements, landscaping, and street trees.
- B. Local means within the geographic boundaries of the City.
- C. Private Easement means an easement or other real property that is only for the benefit of the grantor and grantee and their successors and assigns.
- D. Residential Area means a single-family residential lot or other multifamily residence or undeveloped land that is designated for residential use by zoning.
- E. Service Pole means a pole, owned or operated by the City and located in the right-of-way, including:
  - 1. A pole that supports traffic control functions;
  - 2. A structure for signage; and
  - 3. A pole that supports lighting, other than a decorative pole.
- F. Wireless Permit means a permit, which must be obtained before a person can construct, modify, collocate, or replace a Small Cell Facility or Wireless Support Structure, as set forth in Section 931.02, in or on the Rights-of-way.

**SECTION 5.2**  
**STANDARD DRAWINGS**

**5.2.1 Small Cell Facilities within Pole Base and Upper Pole Standard Drawing**

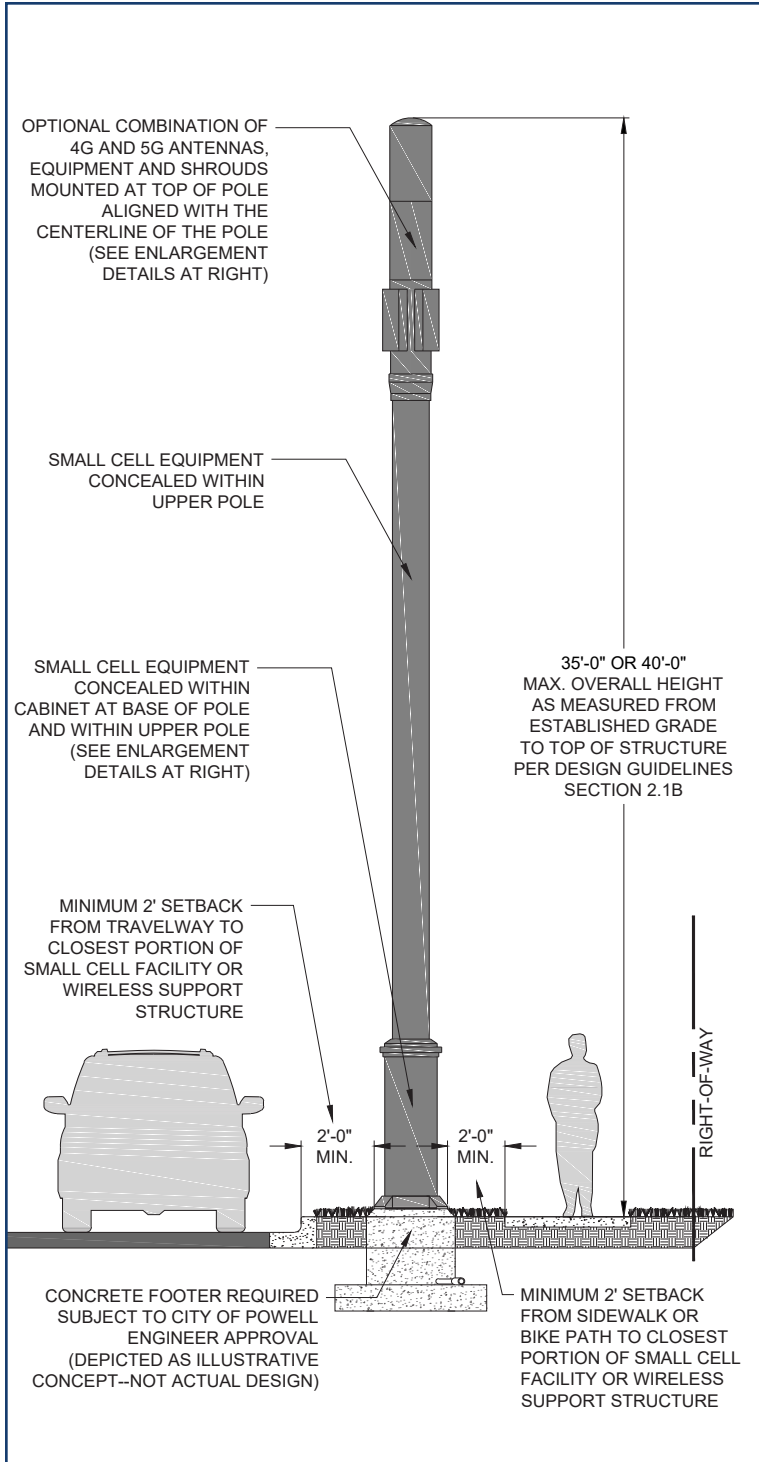


Figure 5.2A--Overview of Small Cell Facilities within Pole Base and Upper Pole

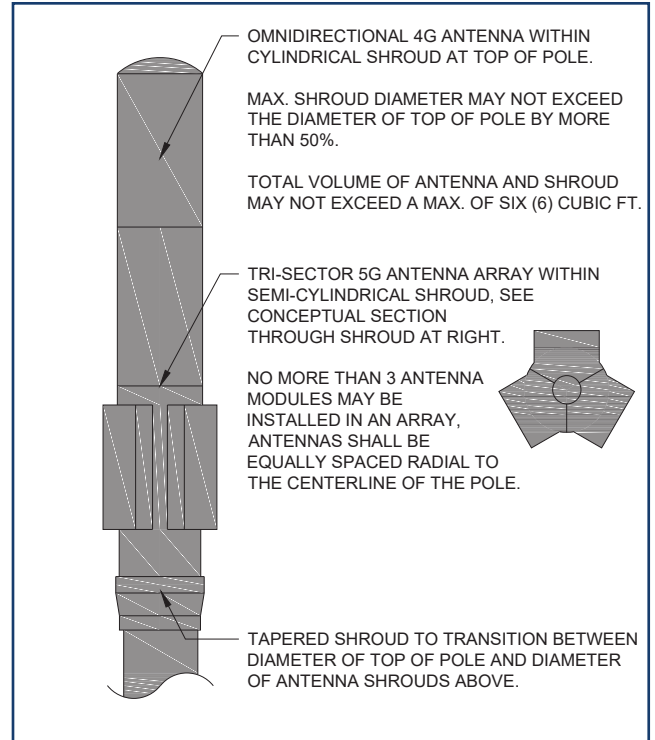


Figure 5.2B--Detail of Antenna

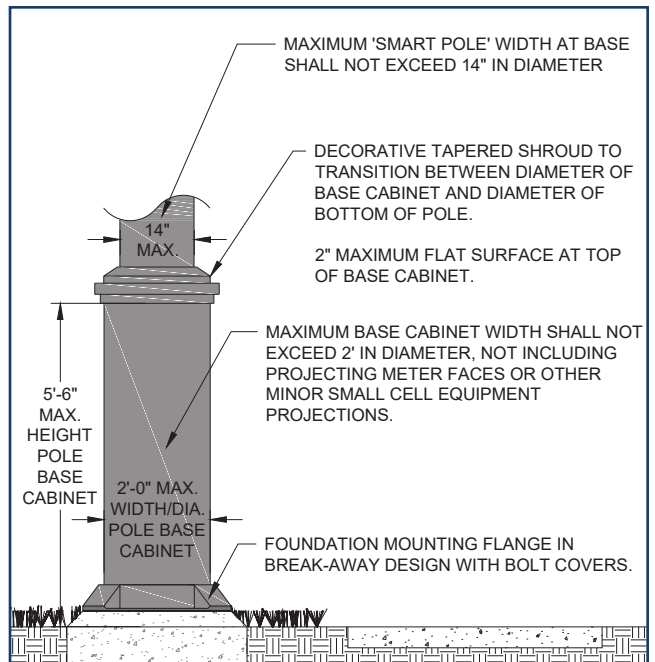


Figure 5.2C--Detail of Pole Base and Upper Pole