



# SMALL WIRELESS FACILITIES IN CITY RIGHT-OF-WAY



# DESIGN STANDARDS

Adopted December 16, 2021

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## 1.0 BACKGROUND AND PURPOSE

Pursuant to Utah Code §§ 54-21-101, et seq., as amended, Wireless Providers are permitted to locate Small Wireless Facilities (SWFs) in the City Right-of-Way (ROW). This network of low-powered micro Antennas provide cellular and data coverage to supplement the Wireless Provider's macro-cellular network. SWFs will improve the Wireless Providers' ability to meet current and future consumer cellular and data needs.

These Design Standards establish design and aesthetic requirements and specifications that all SWF installed within the ROW must meet prior to installation within Park City boundaries. SWFs installed within the ROW are bound to these Design Standards. Deviations from these standards may be approved if reasonable on a case-by-case basis by the City Engineer prior to installation, provided such deviations comply with the Municipal Code of Park City Chapter 14-7 and the Master License Agreement entered into by Park City and the Wireless Provider.

Wireless Providers shall consider the aesthetics of the existing Structures near proposed SWF locations, with special attention given to the details of neighborhoods with unique streetlight assemblies. Unique assemblies may include mast arms, decorative pole bases, architectural luminaires, mounting heights, pole colors, etc. Collocation as defined in Utah Code § 54-21-101 is preferred over new support structures wherever possible if it can be accomplished in a way that better compliments the character of the surrounding area. Wherever feasible the use of infrastructure sharing is encouraged in order to limit the impact of new SWFs.

There are several different SWF installations that are permitted within Park City that are listed below.

- Attachments to traffic signal poles (Requires UDOT approval for State Roads 224 and 248)
- Attachments to streetlights
- New freestanding installations (standalone poles) if collocation is not feasible.
- Other attachments including but not limited to street signs, kiosks, etc.

Collocation of SWFs to structures not owned by the City requires approval from the owner of the structure in question.

## 1.1 DEFINITIONS

For the purposes of these standards, the following terms shall have the following meanings:

- **ANTENNA:** As defined in Utah Code § 54-21-101.
- **APPLICABLE CODES:** Municipal Code of Park City (MCPC); The International Building Code (IBC); the International Fire Code; the National Electrical Code (NEC); National Electric Safety Code (NESCA); as adopted and amended under the State Construction and Fire Codes Act, Utah Code § 15A-1-101 et seq., as amended.
- **APPLICABLE STANDARDS:** The structural standards for Antenna supporting structures and Antennas, known as ANSI/TIA-222, from the American National Standards Institute and the Telecommunications Industry Association.
- **APPLICANT:** As defined in Utah Code § 54-21-101.
- **APPLICATION:** As defined in Utah Code § 54-21-101.
- **CANTENNA:** A structural, weatherproof enclosure that protects an antenna. The Cantenna is constructed of a material that minimally attenuates the electromagnetic signal transmitted or received by the antenna. Cantennas protect antenna surfaces from weather and/or conceal antenna accessory equipment from public view.
- **CITY:** Park City or Park City Municipal Corporation (PCMC).
- **COLLOCATE:** As defined in Utah Code § 54-21-101.
- **DECORATIVE POLE:** As defined in Utah Code § 54-21-101.
- **DESIGN STANDARDS:** These *Small Wireless Facilities in City Right-of-Way Design Standards* adopted by the City Council.
- **FCC:** Federal Communications Commission.
- **HISTORIC DISTRICT OR HISTORIC BUILDING, STRUCTURE, SITE OR OBJECT:** As defined in Land Management Code § 15-15-1.
- **MPE:** Maximum permissible exposure as defined by the FCC.
- **PERMIT:** As defined in Utah Code § 54-21-101.
- **RIGHT-OF WAY (ROW):** As defined in Utah Code § 54-21-101.
- **RMP:** Rocky Mountain Power or its successor.
- **RF:** Radio frequency.
- **RADIO FREQUENCY CERTIFICATION REPORT:** A report to be prepared by and signed by a qualified professional RF Emissions Engineer to accurately record information about each SWF. The report consists of a RF Emission Certification Template and a RF Location Certification. See Section 8 of the Design Standards.

- **STRUCTURE:** Means a Traffic Signal Pole, Standalone Pole, Utility Pole, Wireless Facility, Wireless Support Structure, or Street Light Pole. The term Structure includes any and all forms of existing power supply, conduit, or other form of infrastructure fixtures or equipment for the delivery of power or communication services to such Structure. The term Structure includes the following:
  - **STREET LIGHT POLE:** A pole (wood, steel, or concrete) spaced at intervals along a road or parking lot that provides illumination along the road or parking lot.
  - **TRAFFIC SIGNAL POLE:** A pole (wood, steel, or concrete), which contains a mast arm and other infrastructure to support traffic signal operations.
  - **STANDALONE POLE:** A freestanding pole, sometimes referred to as a monopole (see also Utah Code § 54-21-101, “Wireless Support Structure”), installed for the primary purpose of supporting a SWF. May also be used for lighting or signage as required by the City.
  - **UTILITY POLE:** As defined in Utah Code § 54-21-101.
  - **WIRELESS FACILITY:** Equipment at a fixed location that enables wireless communications between user equipment and a communications network, including: (i) equipment associated with wireless communications; and (ii) radio transceivers, Antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration. Wireless Facility includes Small Wireless Facilities. Wireless Facility does not include: (i) the structure or improvements on, under, or within which the equipment is Collocated; or (ii) wireline backhaul facilities, coaxial or fiber optic cable that is between wireless support structures or utility poles or coaxial, or fiber optic cable that is otherwise not immediately adjacent to or directly associated with an Antenna.
  - **WIRELESS SUPPORT STRUCTURE:** As defined in Utah Code § 54-21-101.
- **SMALL WIRELESS FACILITY:** A wireless facility on which each provider’s Antenna could fit within an enclosure of no more than six (6) cubic feet in volume and for which all related accessory equipment whether mounted on a pole or the ground, is cumulatively no more than twenty-eight (28) cubic feet in volume. The following types of associated ancillary equipment are not included in the calculation of equipment volume; electric meter, concealment elements, telecommunications demarcation box, ground-based enclosures, grounding equipment, power transfer switch, cut-off switch, and vertical cable runs for the connection of power and other services.
- **WIRELESS PROVIDER:** As defined in Utah Code § 54-21-101.

## **2.0 GENERAL STANDARDS**

### **2.1 GENERAL REQUIREMENTS**

- Structure shall be located relative to property lines per Figure 6.6.
- New or replacement Structures cannot be located within an area designated for snow storage.
- Structure shall be located at the intersection of property lines, or along secondary property street facing.
- Structure shall be located with appropriate clearance from existing utilities.
- Structure shall be located preferably equidistant from adjacent poles.
- In primarily residential neighborhoods, noise shall be limited to 5dBA above ambient sound, not to exceed 30 dBA as measured at a property line. If the SWF does not generate noise, include this information in the submittal so information can be shared with neighborhood. City noise restrictions related to construction apply.
- Due to the number of Structures throughout the City and multiple HOAs or planned communities within Park City, the Applicant shall consider and provide SWF equipment similar to adjacent existing Structures.
- All Structures located within the ROW shall be located such that it meets ADA requirements and does not obstruct, impede, or hinder usual pedestrian or vehicular travel, or interfere with the operation and maintenance of signal lights, signage, streetlights, street furniture, fire hydrants, or business district operations .
- SWFs must not bear signage, advertisement, or unnecessary lighting. The City and FCC may require safety warnings and contact information.
- If Structures are owned by third parties, the wireless provider will be required to provide documentation to the City from the owner that they have obtained permission to install SWFs on the respective Structure.
- All Wireless Facilities not on a Structure shall be located in a ground mounted or underground utility box. Fiber in conduits shall be flush with the Structure.
- Attachments to an enhanced or decorative service area streetlight poles cannot change overall character of light or proportion of the luminaries with the placement of a Cantenna. The lighting level of service cannot be decreased. If possible, all equipment shall be located inside the pole.



- SWFs shall be designed in a manner that allows City workers and contractors to easily shut off radio signals and power while working on pole. (The City has the right to turn off or disconnect for necessary operations).
- Attachments to a Structure should have a smooth transition between the SWF and the Structure and (except for the top of a Cantenna) shall not have any flat surface of more than 1.5 inches to prevent creation of a ledge.
- A new SWF must provide adequate separation from any Park City-owned electronics, backhaul, or associated facilities.
- All SWFs and Wireless Provider-owned Structures shall be maintained by the Wireless Provider in a clean and good condition, free of graffiti, rusting, excessive dirt, and peeling paint. Park City shall have the authority to conduct inspections of the Wireless Facilities and Structures at any time to determine whether such Wireless Facilities and Structures comply with the requirements of these Design Standards.
- A Wireless Provider shall not possess, use, generate, release, discharge, store, dispose of, or transport any hazardous materials on, under, in, above, to, or from any right-of-way except in compliance with all applicable environmental laws and pre-approved by City. Wireless Provider shall promptly reimburse City for any fines or penalties levied against City because of Wireless Provider's failure to comply with environmental laws.
- A Wireless Provider may trim trees overhanging the City right-of-way to prevent the branches of such trees from coming in contact with the Wireless Facilities only with permission and under the direction of the City Engineer and at the Wireless Provider's expense.

## **2.2 LOCATION PREFERENCES:**

- Unobtrusive Collocation on existing wireless facilities wherever possible.
- On-strand attachment to a utility pole.
- Attachment to utility poles.
- Attachment to plain wood or metal streetlights.
- Installation of standalone poles.
- Attachment to traffic signal poles.
- Attachment to kiosks or bins.

## **2.3 SMALL WIRELESS FACILITY EQUIPMENT**

**AESTHETICS** – All Wireless Facility equipment should match the aesthetics of the pole and surrounding poles.

**INTERNAL INSTALLS** - Equipment shall be installed within an existing pole when technologically feasible and always on a new pole unless the Applicant proves to the satisfaction of the City Engineer structural feasibility for attachment to an existing pole. Any equipment installed within a pole may not protrude from the pole except to the extent reasonably necessary to connect to power or a wireline.

**EXTERNAL SHROUDING** - The Antenna shall be contained in a Cantenna and any other equipment shall be contained in an equipment cabinet unless the visual impact can otherwise be reduced by its location on the pole.

**ELECTRICAL SERVICE** - Requirements per RMP.

**WIDTH** – In the event of ancillary SWF equipment, the preferred method for storage is either within an existing base cabinet, an aesthetically similar base concealment, or an underground enclosure. In the event these options are not available, a side mounted enclosure may be utilized, with a width not to exceed 16” and an overall volumetric capacity not to exceed four cubic feet.

**SIDEARM (OFF-SET) INSTALLS** - If permitted, may not allow the furthest point of the enclosure to extend more than 18 inches from the pole.

**CONDUITS** - All cables shall be in conduits and shall be flush with the pole unless required to be installed inside the pole.

**HARDWARE ATTACHMENT** - All hardware attachments should be hidden. Welding onto existing equipment is not permitted.

**COLOR** - All equipment should be painted to match pole aesthetics. Paint should be powder coated over zinc paint. If a wood pole, the visible attachments and hardware shall be colored gray.

**EQUIPMENT CABINET ACCESS DOORS** - Lockable access door sized to install, maintain, and remove all Wireless Facility equipment as needed shall meet Wireless Provider’s requirements. Utility access shall be per RMP requirements.

**CABLES** - All cables shall be clearly labeled for future identification.

**CANTENNAS** - Cantenna must be mounted directly on top of a standalone pole, unless a side arm installation is required by a pole owner. A tapered transition between the upper pole and Cantenna is required. Cantenna shall minimize width and volume as much as possible but maximum Cantenna diameters for SWFs shall be 22.5 inches.

**STICKERS** - Any on-pole cabinet and ground mounted utility box should be labeled a (1) RF warning sticker, background to match pole color, no larger than 4 x 6 inches facing to the street near the elevation of the antennae; and (2) 4 x 6 inch (maximum) plate with the Wireless Provider's name, location, identifying information, and 24-hour emergency telephone number. Advertising, logos, or decals are prohibited.

**LIGHTS** - There shall be no lights on the equipment unless required by federal law.

**GROUND MOUNTED EQUIPMENT BOX** - Must meet and follow existing City ordinances for ground mounted utility boxes and be attached to a concrete foundation.

**HEIGHT OF EQUIPMENT ON POLE** - The lowest point may not be lower than 8 feet from the grade directly below the equipment enclosure.

**POWER METER** - As required by RMP and in a location that (1) minimizes its interference with other users of the City right-of-way including, but not limited to, pedestrians, motorists, and other entities with equipment in the right-of-way, and (2) minimizes its aesthetic impact.

## **2.4 NEW AND REPLACEMENT METAL POLES**

**POLE STYLE** - Round. Pole shall match aesthetics of surrounding streetlights. Pole extension on traffic signal pole shall match the rest of the pole.

**POLE CONNECTION** - Attachments to the side of a pole must be placed perpendicular to the street away from the vehicular traffic.

**COLOR** – Any pole, pole extension, attachment, or associated appurtenance shall match the existing streetlight pole color aesthetics and be deemed sufficiently corrosion resistant.

**HEIGHT** - Any pole with a Collocated Wireless Facility shall not exceed 50 feet including the equipment or 10 feet taller than the tallest light pole or utility structure within a 300-foot radius of the proposed location, whichever is shorter. Pole shall be measured from the top of the foundation to the top of the Cantenna.

**DESIGN WIND VELOCITY** - All structural components of Wireless Facility and Structure, pole, standard, base, equipment cabinet, couplers, anchor bolts, luminaires, Cantenna, and other attachments to be used shall be designed for a minimum of 115 MPH wind velocity, in accordance with AASHTO's Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, TIA-222 rev G and ASC 710 with IBC 2012 (or latest standard), plus amendment for snow loading and other local conditions. Any pole not meeting these requirements may not be used for a Wireless Facility, or must be replaced.

**CONDUITS** - All cables shall be in conduits and shall be flush with the pole unless required to be installed inside the pole.

## **2.5 SMALL WIRELESS FACILITY COLLOCATED ON A POLE**

Subject to the provisions of this Section, Collocation of Wireless Facilities is generally preferred over new support structures if it can be accomplished in a way that better compliments the character of the surrounding area.

Collocation with non-municipal facilities: Collocation on facilities or support structures owned by parties other than the City is subject to the following:

Where an existing facility or support structure can potentially accommodate collocation of a new wireless facility, collocation will be required unless:

- The Applicant submits substantial evidence supporting the unsuitability of the Collocation;
- The owner of the existing facility or support structure is unwilling to accommodate the Applicant's equipment and cannot be required to cooperate.

Authorization for Collocation on a facility or support structure owned by a party other than the City will be voided if the facility or support structure is destroyed, removed, relocated, or replaced, unless:

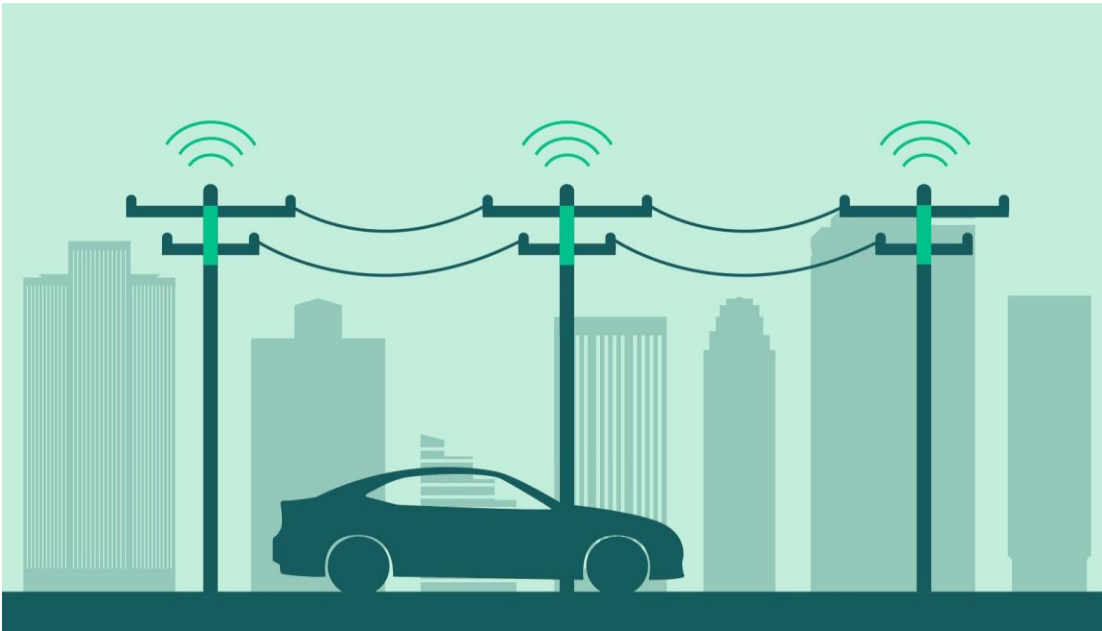
- The owner of the collocated facility obtains a new Right-of-Way use Permit; or
- The facility or support structure accommodating the collocation is replaced with a facility or support structure comparable in size, mass, appearance, and placement, as determined by the City Engineer.

All installations are subject to the City Permit Application and review process.

## **2.6 POWER AND GROUND MOUNTED UTILITY BOXES**

- Back up batteries must be in a ground mounted utility box, or underground where possible.
- A separate meter and disconnect is required for both the power and the cell signal that can be accessed and operated by street lighting maintenance personnel.
- Ground mounted utility boxes must have metered power.

### **3.0 ATTACHMENTS UTILITY POLE (includes Park City & Third Party poles)**



#### **3.1 PURPOSE**

This Section is for attachment of a SWF to Park City or a third party utility pole. A SWF attachment will conform to pole owner's attachment standards.

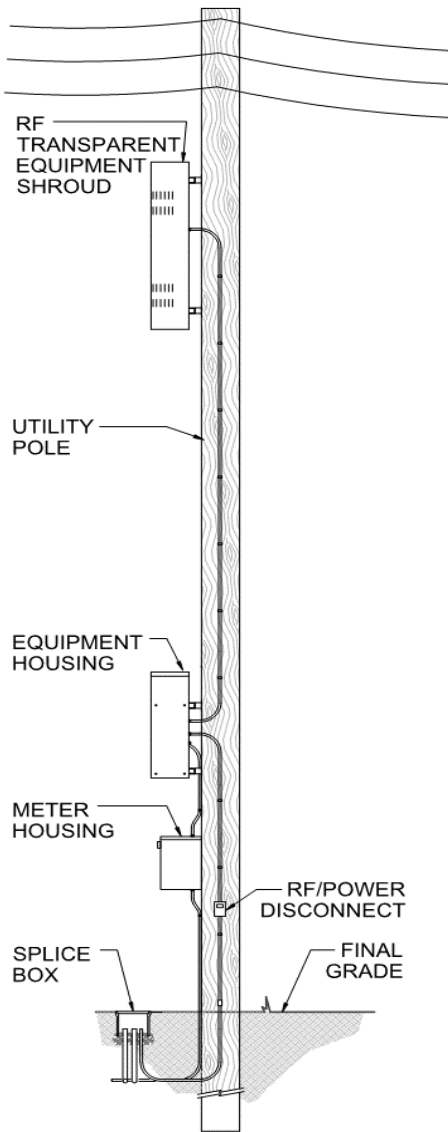
#### **3.2 STANDARDS**

Any attachment to a third party Structure or utility line must first be approved by the owner of the infrastructure. This includes attachment of overhead fiber and on-strand attachments proposed to attach to a utility pole. These Design Standards apply whether attachment is to an existing utility pole, or if the owner requires installation of a replacement pole.

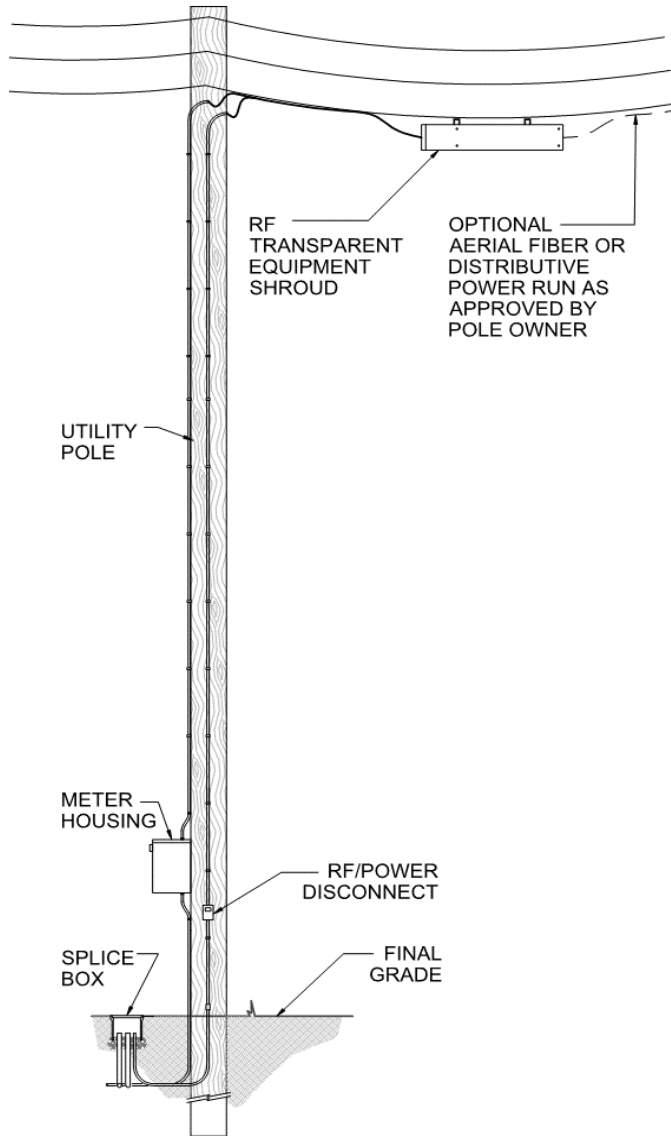
See Figure 3.1 for typical connections. Refer to the utility company for specific requirements and approvals.

Figure 3.1 Attachments To Utility Poles

Type A – Utility Mounted Pole



Type B – Strand Mounted



\*This equipment will be attached to existing wooden utility poles located within PCMC's right of way, all equipment installations shall be approved by the appropriate utility.

## 4.0 ATTACHMENTS TO TRAFFIC SIGNAL POLES



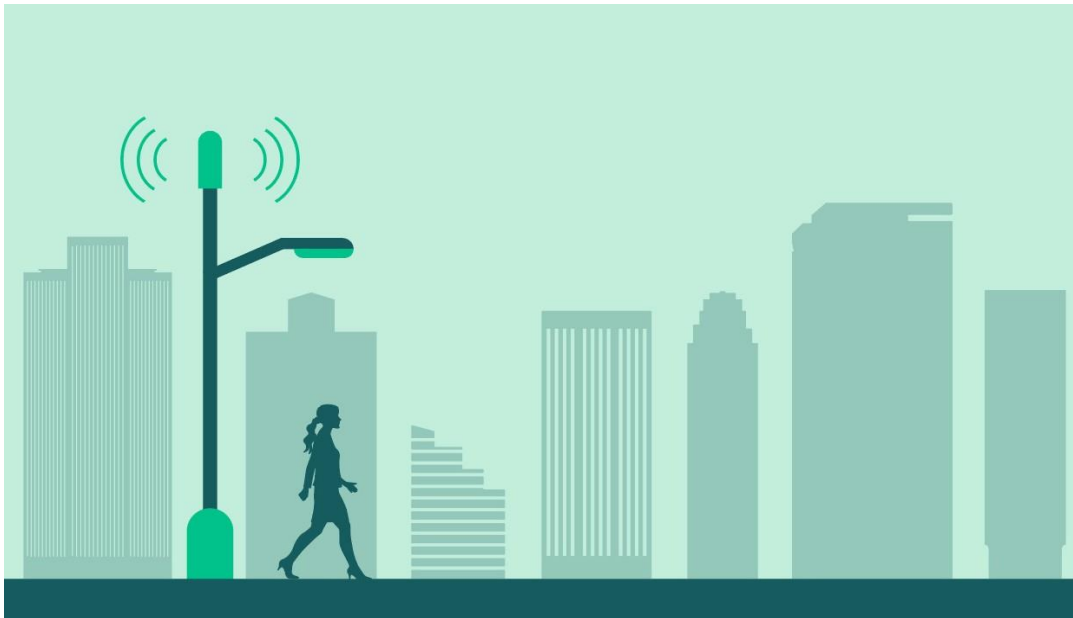
### **4.1 PURPOSE**

This Section of the Design Standards governs attachment of a SWF to the top of an unused traffic signal upright pole. A SWF may not be placed on a traffic signal upright pole where there is a luminaire attached.

### **4.2 REQUIREMENTS**

The Wireless Provider needs to obtain approval from the Utah Department of Transportation for the placement of any infrastructure on a traffic signal pole. Wireless Provider must demonstrate that the proposed SWF shall not cause any interference with any City or State owned systems on a pole such as a public safety radio system, emergency signal control devices, radio read water meters, “smart” street lights, future “smart city” applications, other city communications components. City will provide any frequencies for equipment described above to the Wireless Provider to assist in the analysis.

## 5.0 ATTACHMENTS TO STREET LIGHTS



### **5.1 PURPOSE**

This Section governs SWF attachments to a streetlight. Three different types of SWF installations are permitted on streetlights, including:

- Collocating SWF equipment on plain (non-decorative) wood or metal streetlight poles.
- Replacing an existing or adding a new wood or metal streetlight pole so that SWF equipment can be attached.
- Collocating on enhanced or decorative service area streetlight poles.

### **5.2 STANDARDS**

All Wireless Provider equipment shall be housed internal to the equipment cabinet or hidden behind the Antenna if possible. No Wireless Provider equipment shall be strapped to the outside of the pole.

On an existing pole, the equipment excluding the Antenna shall be shrouded in an equipment cabinet if on the pole, otherwise shielded from view (for example, behind a sign), hidden within the Antenna, or contained in a ground mounted utility box.

On a new streetlight, the Wireless Provider may house the equipment inside the pole structure in an equipment cabinet at the base of the upper pole.

Base equipment shall be round with a preferred base cabinet diameter of 16- inches with a maximum 20- inch diameter.



The meter shall be contained in a ground mounted utility box, unless permitted to be inside an equipment cabinet as approved by RMP.

New streetlights or replacement streetlights shall comply with the Dark Sky standards and the City Design Standards and specifications which provide guidance on luminaire design aesthetics, lighting level criteria, typical street light spacing, and street light details.

All equipment height shall be above the ground at least 8 feet.

Equipment should be oriented to face away from traffic.

The size of SWF should be minimized as much possible to mitigate visual impact without interfering with the SWF operation.

Equipment may not block visibility of streetlight banners.

An example of an unacceptable small cell installation and acceptable installation can be found in Figures 5-1 and 5-2.

**Figure 5-1: Unacceptable**



**Figure 5-2: Acceptable**

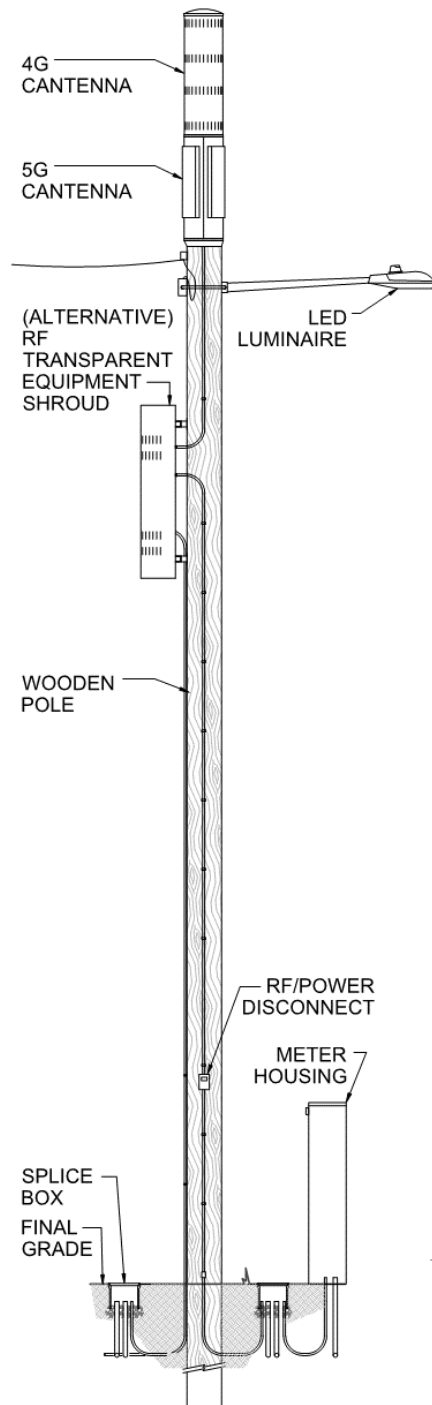


- Conduit, mounting bracket, and other hardware must be hidden from view.
- Cantenna must include a smooth transition between upper pole and Cantenna attachment.
- Upper pole shall be smooth and straight, with 1.5-inch (max.) of flat surface where mounted to the equipment cabinet.
- Equipment cabinet must be round. 16-inch diameter is preferred, 20-inch diameter max.

Attachments to an enhanced service area light pole cannot change overall character of light or proportion of the luminaires with the placement of a Cantenna. The lighting level of service cannot be decreased.

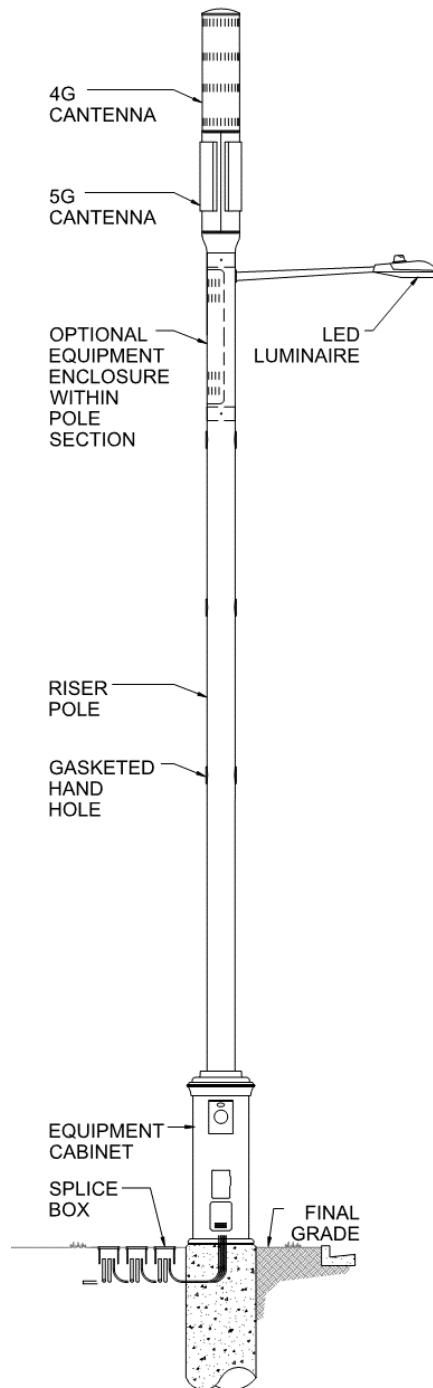
- All new luminaires shall be the same height as adjacent streetlight luminaires.
- City may require a new streetlight in lieu of a standalone pole.
- Wood poles only allowed by approval in areas that are predominately wood or when replacing an existing wood pole.
- Any lighting replacements shall provide equivalent light spread, intensity, and color temperature.
- Wherever feasible underground equipment enclosures shall be utilized to conceal ancillary equipment required for the wireless installation.

**Figure 5-3: Existing Wooden Street Light Pole**



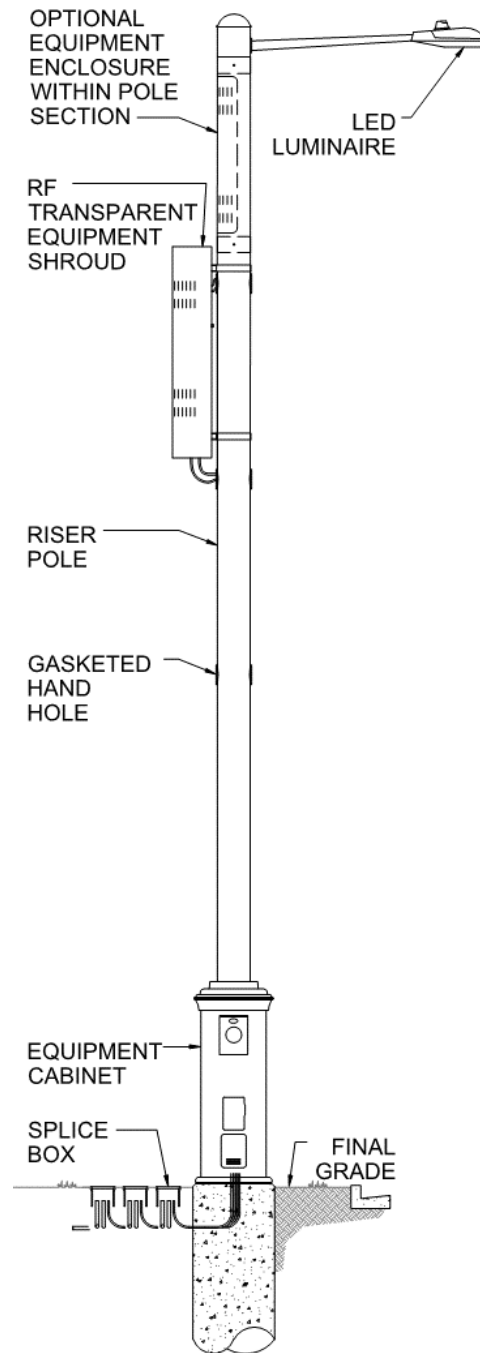
\*This equipment will be attached to existing wooden streetlight poles that do not require structural modifications.

**Figure 5-4: Combination Street Light Pole - Antenna**



\*Combination poles shall be installed in all situations that require the removal of an existing streetlight pole (wood, metal, fiberglass, etc.) and replacement with a new combination pole.

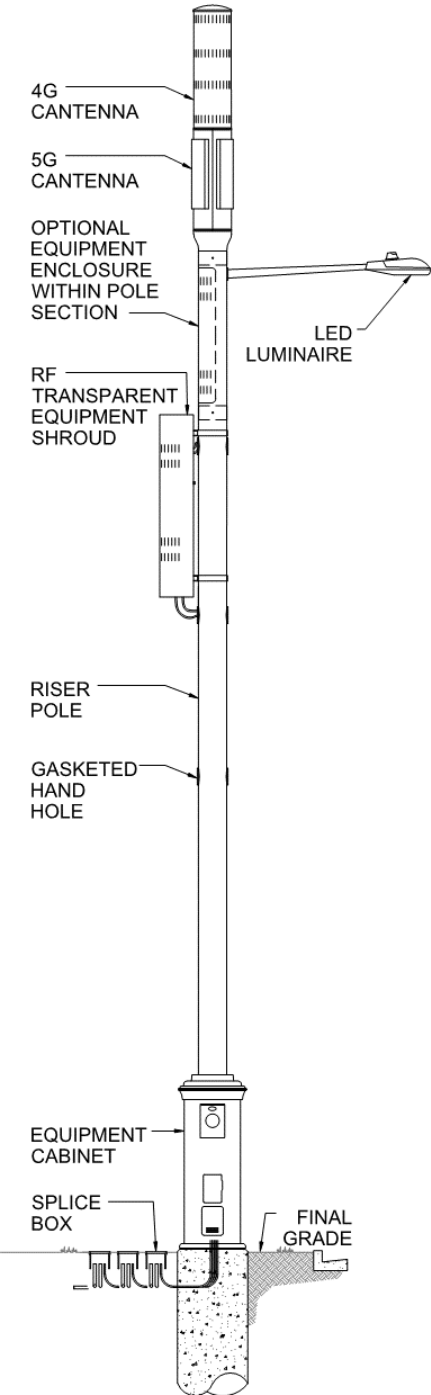
**Figure 5-5: Combination Street Light Pole - External Shroud**



\*Combination poles shall be installed in all situations that require the removal of an existing streetlight pole (wood, metal, fiberglass, etc.) and replacement with a new combination pole.

\*\*To qualify for an external shroud permit, the Applicant must demonstrate that the proposed deployment(s) cannot be integrated into the equipment or the Cantenna.

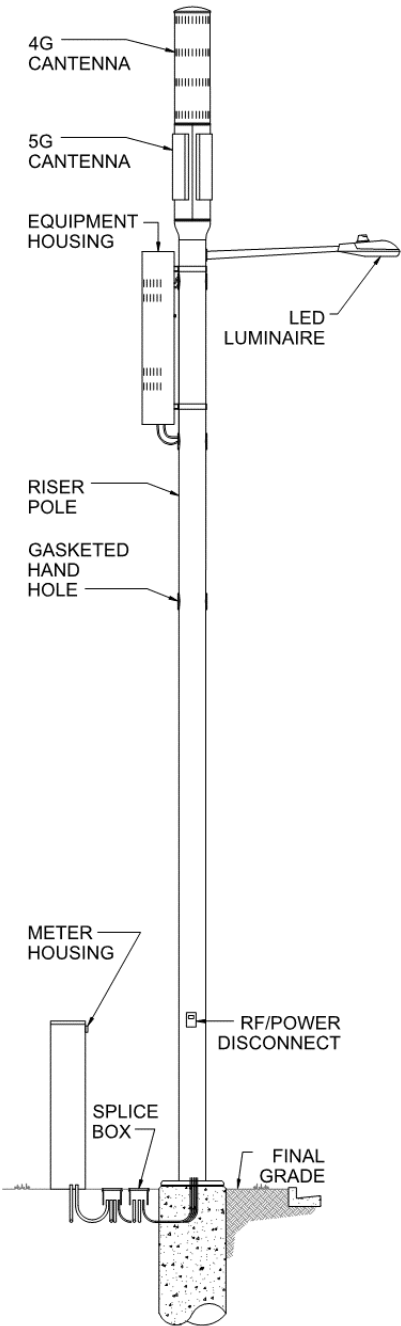
**Figure 5-6: Combination Street Light Pole - Cantenna and External Shroud**



\*Combination poles shall be installed in all situations that require the removal of an existing streetlight pole (wood, metal, fiberglass, etc.) and replacement with a new combination pole.

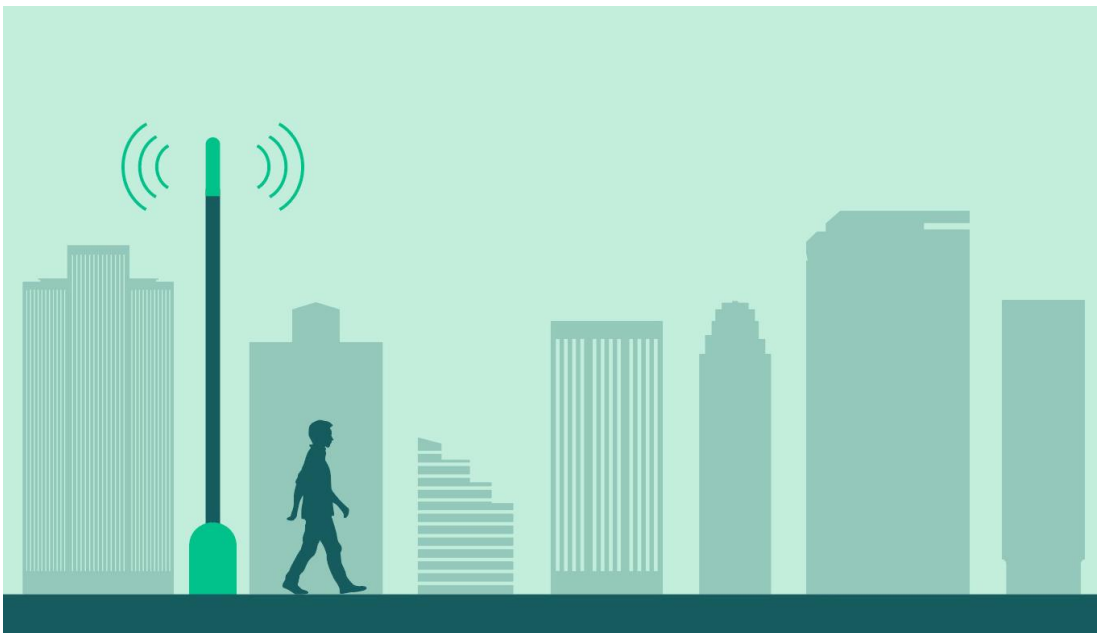
\*\*To qualify for an external shroud permit, the Applicant must demonstrate that the proposed deployment(s) cannot be integrated into the equipment or the Cantenna.

**Figure 5-7: Combo Street Light Pole - Distributive Power w/ Antenna and External Shroud**



\*Combination poles shall be installed in all situations that require the removal of an existing streetlight pole (wood, metal, fiberglass, etc.) and replacement with a new combination pole.  
\*\*To qualify for an external shroud permit, the Applicant must demonstrate that the proposed deployment(s) cannot be integrated into the equipment or the Cantenna.

## 6.0 INSTALLATION OF STANDALONE POLES



### **6.1 PURPOSE**

This Section of the Design Standards is to be used when installing a freestanding SWF installation, referred to as a standalone pole.

### **6.2 STANDARDS**

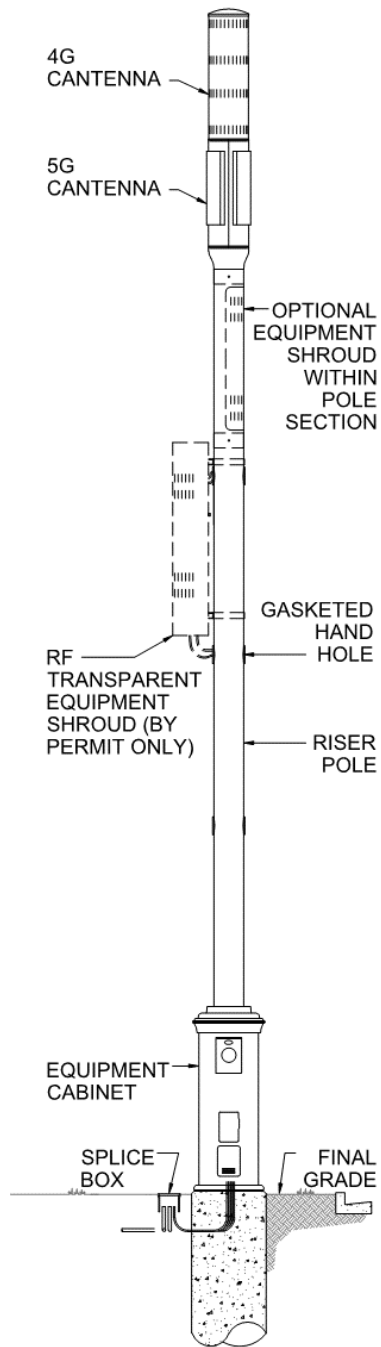
All Wireless Facility carrier equipment excluding the Antenna shall be housed internal to an equipment cabinet at the base of the pole or hidden behind the Cantenna. No Wireless Provider equipment shall be strapped to the outside of the monopole.

- Standalone poles to be consistent with neighborhood pole style and material type.
- New monopoles must be metal (aluminum or steel).
- Ownership of standalone poles is to remain with the Wireless Provider. City reserves the right to attach any sign (such as a no parking sign) on the monopole.
- At least 15% of the pole design structural capacity shall be reserved for future City installations.
- All new poles must have appropriate clearance from existing utilities.

Freestanding SWF pole components include the foundation, equipment cabinet, upper pole, Cantenna, and all hardware and electrical equipment necessary for a complete assembly, as shown in **Figure 6-1**



**Figure 6-1: Standalone Pole Small Wireless Facility**



\*This equipment may be installed when no existing streetlight or other appropriate location is within 25 feet of the proposed freestanding location. To qualify for an external shroud permit, the Applicant must demonstrate that the proposed deployment(s) cannot be integrated into the pole assembly.

### **6.3 PLACEMENT REQUIREMENTS**

**All standalone poles shall be privately owned and must be permitted by Park City Engineering via the ROW Permit Requirements as outlined in the Master License Agreement and to the extent technically feasible.**

- Preferred location for new pole is generally on property line to avoid interference with building face, views, business signage, pedestrian flow, etc.
- In a manner that does not impede, obstruct, or hinder pedestrian or vehicular travel.
- So as not to significantly create a new obstruction to property sight lines.
- At the intersection of property lines, or along secondary property street facing.
- Within the street amenity zone whenever possible.
- In alignment with existing trees, utility poles, and streetlights.
- Equal distance between trees and other poles when possible, with a minimum of 15 feet separation such that no proposed disturbance shall occur within the critical root zone of any tree.
- With appropriate clearance from existing utilities.
- Located outside of the clear sight triangle at intersection corners as shown in Figure 6-4.
- 10 feet away from the triangle extension of an alley way flare.
- Shall not be located within 100 feet of the apron of a fire station or other adjacent emergency service facility.
- **Minimum spacing between proposed and existing privately-owned wireless support structures.** The minimum horizontal distance between a new wireless support structure and associated small wireless facilities and any other existing, or permitted but unconstructed, wireless support structures and small wireless facilities on the same side of the right-of-way at the time a complete Application is filed with the city, irrespective of the owners/operators, should generally not be less than 300 linear feet, as measured parallel to the right-of-way, unless otherwise approved.
- **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 wireless facilities on the same wireless support structure, the City may resolve conflicting requests through whatever reasonable and nondiscriminatory manner it deems appropriate.
- **City proposed alternative location for wireless support structures.** The City may propose an alternate location to any proposed location of a new wireless support structure, subject to the following:
  - That the alternate location is within one hundred (100) feet of the proposed location or within a distance that is 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 alternative location provides a comparably equivalent technological solution or additional costs.

- **Waiver to City directed alternate wireless support structure location or undergrounding requirements.** Small wireless 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 wireless facility under the following circumstances:
  - From a location in the right-of-way where the 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.

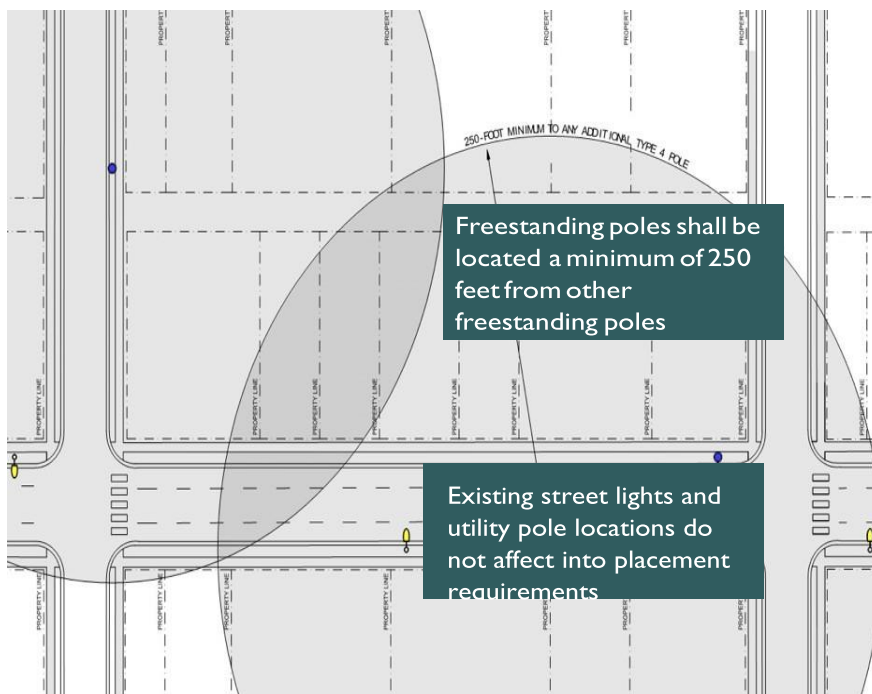
## 6.4 STANDARDS FOR STANDALONE POLES RESIDENTIAL STREETS LESS THAN 60 FEET WIDE

Residential zones: A Wireless Provider may not install a new utility pole in City ROW adjacent to a residential zone, if the curb to curb measurement of the street is 60 feet wide or less as depicted on the official plat records or other measurement provided with the Application, unless the City has given prior written consent based on evidence provided that demonstrates:

- There is insufficient wireless service to meet the demand in the immediate vicinity.
- There are no other feasible options to provide adequate service along the residential street.
- Preferred to be between curb and sidewalk in park strip. If no park strip is available, consider a corner installation before an installation on lawn.

**Figure 6-2** shows a freestanding SWF which is preferred to be a minimum of 250 feet apart radially. This radius extends around corners and into alleys. They shall be located in line with trees, existing streetlights, utility poles, and other furniture located in the ROW, as shown in **Figure 6-3**.

**Figure 6-2: Freestanding SWF spacing radius**



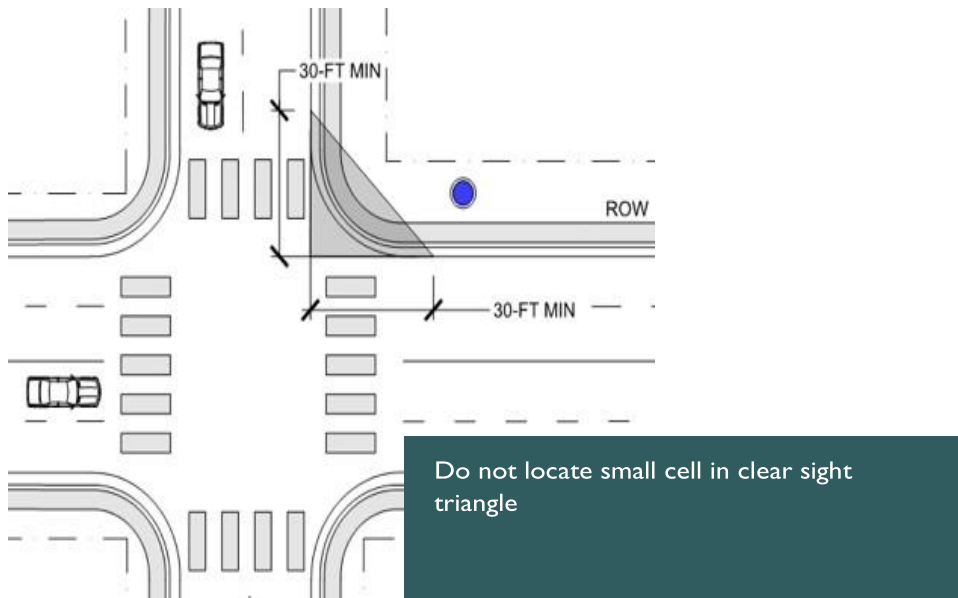
**Figure 6-3: Freestanding Pole SWF in City ROW**



Freestanding SWF shall be located such that they in no way impede, obstruct, or hinder the usual pedestrian or vehicular travel, affect public safety, obstruct the legal access to or use of the City ROW, violate applicable law, violate or conflict with City ROW, Design Standards, specifications, or design district requirements, violate the Federal Americans with Disabilities Act, or in any way create a risk to public health, safety, or welfare.

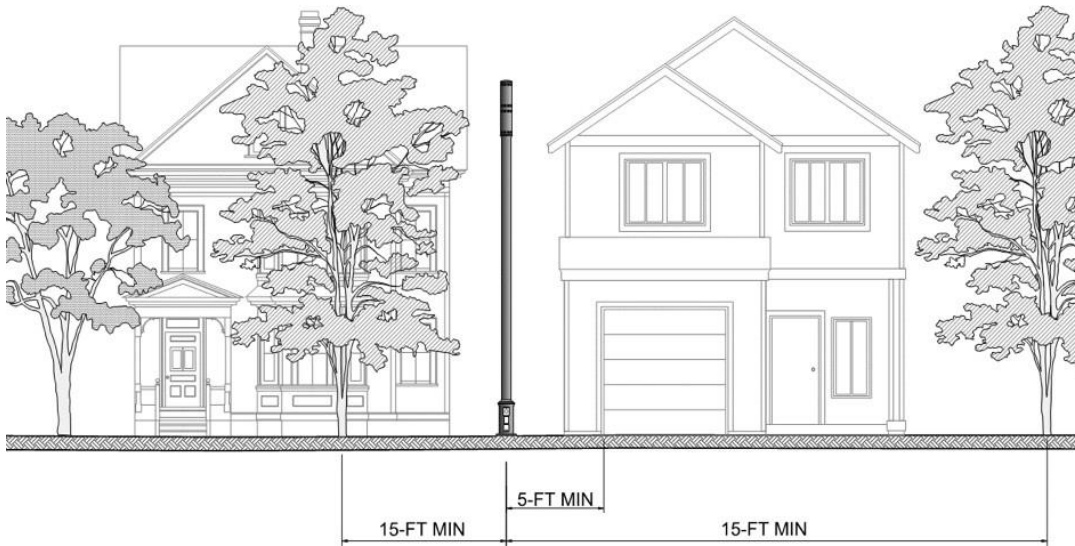
Freestanding SWFs shall be located within the ROW and off set from the sidewalk as shown in **Figure 6-4 Sight Triangle**.

**Figure 6-4 Sight Triangle**



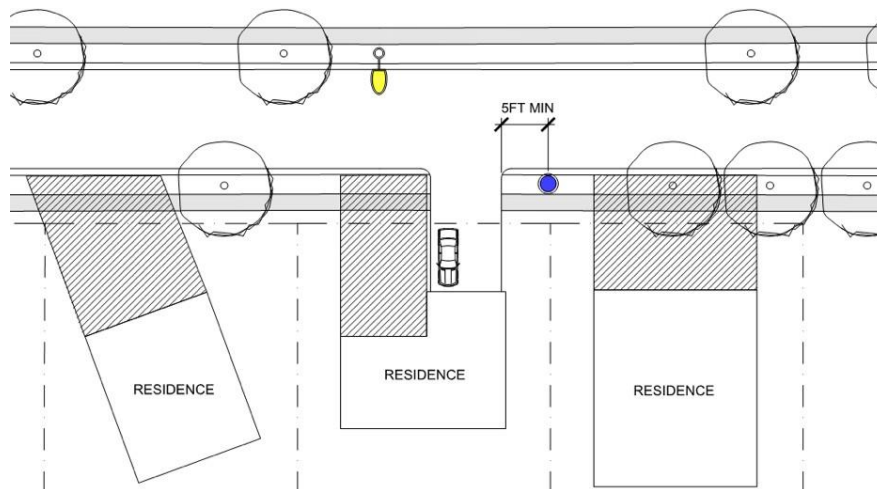
Freestanding SWFs shall be located at intersecting property lines as much as possible. Whenever possible, the freestanding SWFs shall be located on the secondary street. SWFs shall also be located a minimum of 15 feet away from trees to prevent disturbance within the critical root zone of any tree, as shown in **Figure 6-5**.

**Figure 6-5: Freestanding SWF Location Between Property And Trees**



The SWFs shall not be installed between the perpendicular extensions of the primary street-facing wall plane of any single or two-family residence as shown in **Figure 6-6**.

**Figure 6-6: Freestanding SWF Between Property Lines**



- Freestanding SWFs in the perpendicular extension of the primary street-facing wall plane is prohibited.
- Freestanding SWFs in front of driveways, entrances, or walkways is prohibited.

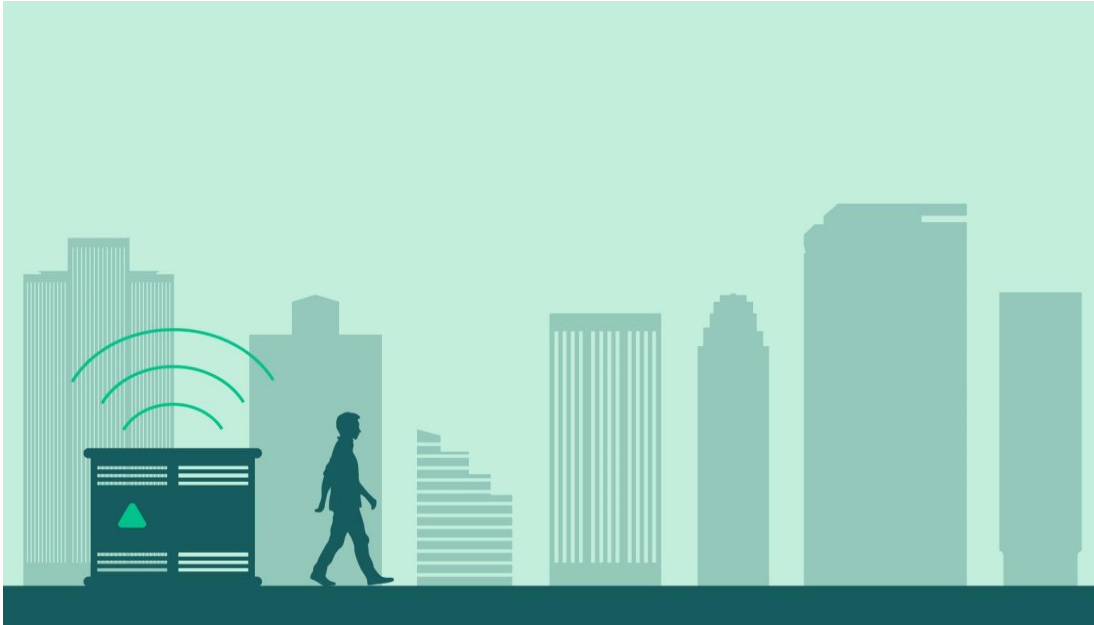
SWFs shall not be located in front of storefront windows, primary walkways, primary entrances or exits, or in such a way that it would impede a delivery to the building. SWFs should be located

between properties as much as possible as shown in **Figure 6-7**.

**Figure 6-7: SWFs In Commercial Area**



## 7.0 OTHER ATTACHMENTS (Kiosks, Bins, Etc.)



### **7.1 PURPOSE**

This Section of the Design Standards is to be used for SWF installations on other City owned assets located in the City ROW such as kiosks and signs.

### **7.2 STANDARDS**

All SWFs proposed to be installed on kiosks, bins, or signs within the ROW shall be approved by Park City prior to installation.

Kiosks are generally small structures used for advertising local events. Installation of SWFs on a kiosk will require all equipment to be installed within the kiosk or the roof structure with a Cantenna extending above the roof. The design of the facility must take into account the architectural design of the kiosk and the surrounding development to accomplish the goal of integrating the facility and limiting its visual impact.

Utah Code Chapter 54-21 allows the installation of SWFs on signs located within the City ROW. Most signs in the City ROW are related to public safety, traffic, and parking regulations and/or provide directional information. Park City will consider the placement of SWFs on pole signs located within the City ROW only when it can be demonstrated that the SWF will not create any hazard for pedestrians, cyclists, or motor vehicles, visibility of adjacent buildings is not unduly impaired, and the existing structure can adequately handle the structural requirements for such a SWF.

### **7.3 BASIS OF DESIGN**

The SWF design and installation shall be compatible with the aesthetics of existing kiosks, bins, or signs. The Wireless Provider shall provide a photo simulation of the proposed design prior to



submitting a permit Application to determine consistency with adjacent poles and lights. The SWF components shall be sized to be proportional and limit the potential impact along the streetscape.

#### DESIGN STANDARDS FOR KIOSKS, BINS, Etc.

- All hardware connections shall be hidden from view.
- Equipment installed on kiosks, bins, or signs should be shrouded under the kiosk cap or roof.
- The Cantenna may extend a maximum of 10 feet above the kiosk cap or roof.
- The Cantenna assembly will be circular with cabling shrouded or enclosed.
- The Cantenna shall match the color of the kiosk or bin. Utilization of another color that best minimizes the visibility of the Antenna is acceptable.
- The SWF must meet all appropriate structural standards and wind loading specifications.
- The SWF shall be architecturally compatible with the design of the kiosk and create a cohesive aesthetic.

#### DESIGN STANDARDS FOR SIGNS

- SWF attached to freestanding Park City owned pole signs in the City ROW shall only be allowed on existing signs poles.
- The SWF Antenna shall only be installed on top of the sign pole.
- The SWF Antenna shall extend a maximum of 10 feet above the height of the existing sign pole and shall be installed above the sign mounted on the pole.

**7.4 EXAMPLES OF OTHER ATTACHMENTS:**



## **8.0 RADIO FREQUENCY CERTIFICATION REPORT**

Park City requires that all new small wireless infrastructure proposed to be placed within Park City limits submit a Radio Frequency (RF) Certification Report to allow for responsible recordkeeping of wireless programs. The RF Report will contain an affirmation that the proposed installation will be FCC compliant. During the life of any approved Permit the City reserves the right to randomly test the operating RF levels of each site to confirm compliance with the FCC guidelines.

An RF Emissions Certification Report will consist of two parts: an RF Emissions Certification template and a site-specific RF Location Certification. Each RF Emissions Certificate shall be signed by a qualified Professional Electrical Engineer, filed with Park City Engineering as part of the applicable wireless company program, and referenced with each SWF Application. Each site specific RF Location Certification must be completed and signed by a Utah registered RF Professional Electrical Engineer who shall certify the siting specifics of the actual location(s).

### **8.1 RF EMISSIONS CERTIFICATION TEMPLATE**

The specific information required for the RF Emission Certification Template is detailed in this section. Each Template shall be signed and sealed by a qualified Professional RF Emissions Engineer and filed with the Engineering Department in reference to the applicable Wireless Carrier program, and shall contain the following elements:

1. Description of the proposed equipment and deployment type, including heights, associated with the Template. Each unique Template shall be coded per the Carrier's program, such as: 1, 2, 3 or A, B, C.
2. All frequencies on which the proposed equipment will operate.
3. The number of channels that will be used on each frequency
4. A table explaining the Federal Communications Commissions (FCC) Rules and Regulations for the Maximum Permissible Exposure (MPE) limits for general population or occupational situations.

The MPE output levels for proposed equipment shall be clearly shown on a table at the Antenna level and ground level with the following columns: predicted power density (mW/cm<sup>2</sup>), FCC limits of power density (mW/cm<sup>2</sup>), and FCC general population limits (%MPE)

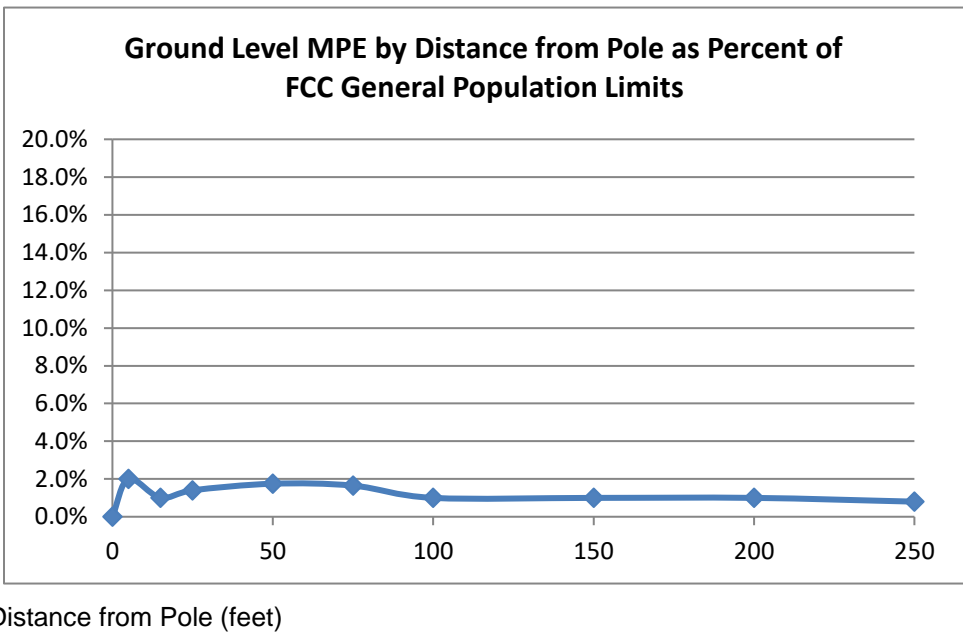
**Table 8-1 (Example of) Permissible Exposure Limits\***

Location	Predicted Power Density (mW/cm <sup>2</sup> )	FCC Limit Power Density (mW/cm <sup>2</sup> )	FCC General Population Limits (%MPE)
Antenna level	1.958	1.0	195.8%
Ground level	0.0092	1.0	0.92%

\*Data within table is for example only and does not indicate specific requirements or limits,

- A graphic of the predicted FCC General Population Limits (%MPE) at ground level as a function of distance up to 250 feet away from the pole. Figure 8-1: (Example of) FCC General Population Limits

**Figure 8-1: (Example of) FCC General Population Limits**



- A compliance statement noting and depicting any requirement for RF alerting signage and occupational environmental compliance.

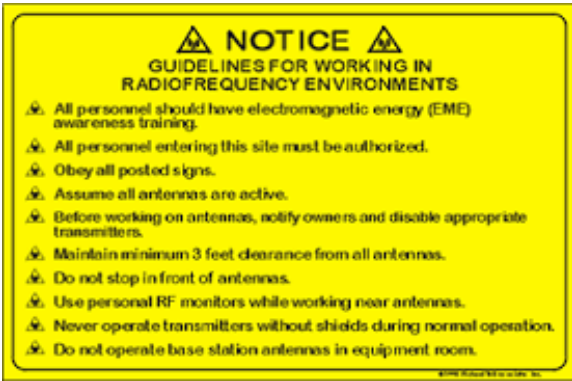
**8.1.1 Typical Notification Signage**

Portions of any transmitter site may have high power densities that could cause exposures in excess of the FCC Occupational or General Population guidelines.

- The companies that operate the Antennae are required by law to implement the following:
- Restrict access
- Post notification signs on every access point to increase awareness of the potential for exposure BEFORE one enters an area with Antennae.

Place additional notification signs and visual indicators in an area with Antennae (beyond an access point) where RF exposure levels may start to exceed the FCC’s limits.

**Table 8-2: Typical Notification Signage**



(Notice) Radio Frequency Guidelines: Informs people of the basic safety guidelines for working in an RF environment



Information: Provides relevant contact information about the pole and/or Antenna location for any questions, emergencies, or requests.



(Blue): Notice Indicates that, beyond the sign, RF exposure levels may exceed the General Population MPE limit but will remain below the Occupational MPE limit.



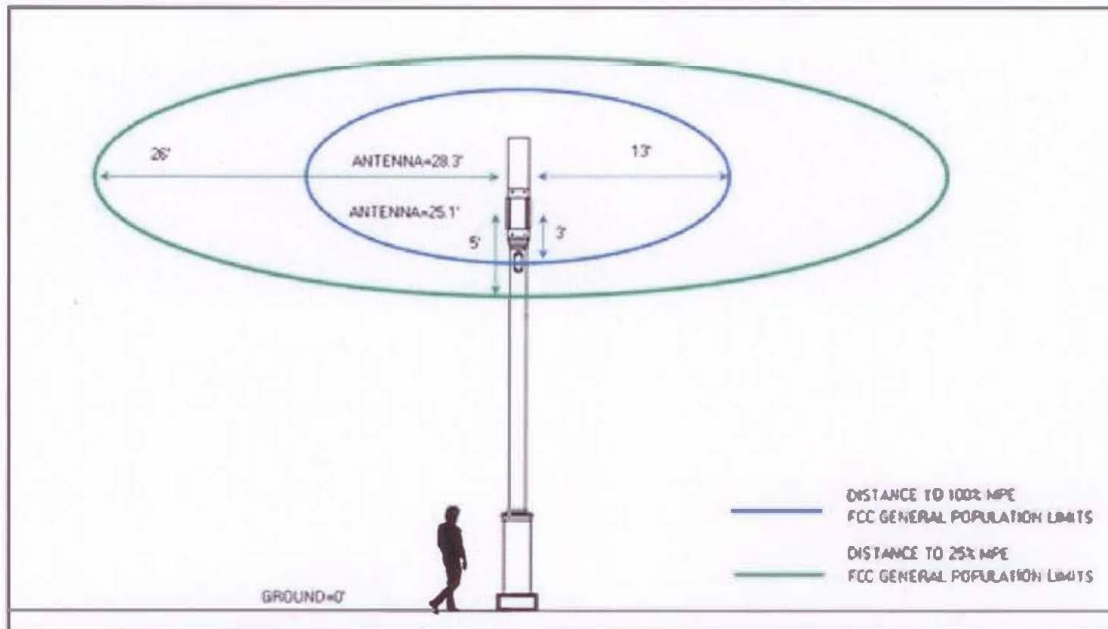
(Yellow) Caution: Indicates that, beyond the sign, RF exposure levels may exceed the General Population and Occupational MPE limits.



(Red/ Orange): Warning Indicates that, beyond the sign, RF exposure levels may substantially exceed the General Population and Occupational MPE limits.

7. A graphic, scaled elevation depiction of the maximum power density MPE levels proposed by equipment expressed as proportionally scaled lines at 100% and 25% of the FCC general population limits for continuous exposure. The elevation view shall provide measurements of the height above ground for the lowest point of each proposed transmitter, from ground to the top of the proposed pole, and horizontal distance from transmitter Antennas to MPE limit lines. A scaled human figure shall be proposed standing on the ground adjacent to the proposed pole.

**Figure 8-2: (Example of) Elevation Depiction of the Proposed Equipment Emissions**



8. Each template shall be signed and sealed by a qualified Professional RF Emissions Engineer

### **RF Location Certification**

The site-specific RF Location Certification, prepared for each specific local Application bundle, shall include the information below for each specific proposed Antenna location. The RF Location Certification shall be signed off by a Utah Registered Professional Engineer qualified to endorse such a certification.

1. A general summary of the proposed wireless site(s) associated with the bundle, with clear references matching the Application address, site code, latitude and longitude, type of structure, RF Emissions Compliance Report Template (also referred to as the Equipment Deployment Template Type) applicable to Antenna location, and report date.
2. A scaled location map(s) on color aerial image background indicating proposed site location(s), street name(s), and distance(s) to the nearest occupied structure(s). If any of the equipment proposed would have any portion of the nearest structure within the 100%

General Population MPE limits, then the wireless equipment for that location must be “powered down”. A revised signed and sealed report from a Profession RF Emissions Engineer will be required to replace the template for that specific location.

3. Acknowledgement (or statement of none) whether or not there are any nearby commercial wireless radio transmitters that could affect the aggregate MPE of proposed equipment. If so, a revised signed and sealed report from a Professional RF Emissions Engineer will be required to replace the template for that specific location. The Certification shall also acknowledge what percentage the proposed equipment contributes to an aggregate MPE.
  
4. A stamp and signature from a licensed Professional Engineer with sufficient knowledge about each proposed location associated with the Application to affirm site-specific information provided, and that the applicable RF Emissions Template has been properly referenced for each location.

## 9.0 TECHNICAL SPECIFICATIONS

The following sections describe in detail the foundation and electrical specifications. All work completed in the ROW must be in accordance with these standards and the most current version of the Park City standards and specifications.

This work consists of furnishing and installing foundations, small cell poles, conduit, junction boxes, cable, wiring, junction boxes, and incidental materials for small cell installation in accordance with these specifications and in conformance with the details, lines, grades, and locations shown on the plans.

**MATERIALS:** Small Wireless Facilities materials shall conform to Small Cell and Electrical Materials.

**FOUNDATIONS:** Concrete bases and equipment pads shall be pre-cast or cast-in-place concrete per the City standard to meet ACI 318. A complete foundation includes the concrete, reinforcing steel, anchor bolts, leveling nuts, conduit stubs, ground rod and wire, excavation and backfill, restoration, accessories as required providing a complete unit. Banner arm (if required) wind loading shall be incorporated into light standard structural design.

**SMALL CELL STANDARD:** A complete light standard includes the metal upper pole, mounting bracket, mast arm(s), Cantenna, equipment cabinet, base, grounding system, and all hardware. The upper pole shall have a handhole at the top to maintain City fiber and streetlight electrical service. An optional handhole shall be provided at the bottom of the upper pole if fiber and electrical service cannot be accessed from the equipment cabinet.

Pole and mast arm or arms shall be the type and size shown on the plans.

**CONDUIT:** Conduit includes conduit, trenching, backfill, jacking, augering, fittings, drainage tees, sealing, restoration, and accessories as required to provide a complete installation.

**ELECTRICAL WARNING TAPE:** Detectable electrical warning tape shall consist of pre-manufactured non-adhesive polyethylene material that is unaffected by acids, alkalines, and other soil components. The color of the tape shall be red, and it shall be, at a minimum, 3.5 mils thick and 6 inches wide. Its tensile strength shall be 2,500 psi lengthwise.

The electrical tape shall include the following identification printed in black letters continuously along the length of the tape: "CAUTION BURIED ELECTRIC LINE BELOW".

The identification note and color of tape shall conform to the requirements of the "American Public Works Association (APWA) Uniform Color Codes (Red) – Electrical Power Lines, Cables, Conduit and Lighting Cables."

**CONDUCTORS:** Conductor includes control wiring, luminaire wiring, main circuit wiring, ground wiring, service entrance wiring, pulling, splicing, connections, testing, and all other wiring



necessary for a complete installation.

**PULL BOXES:** Pull box includes pull box, cover with bolts, excavation, gravel base, backfill, sealing, restoration, and accessories as required to provide a complete installation.

**MATERIALS LIST:** At the preconstruction conference the contractor shall submit to Park City three copies of a list of all materials and equipment to be incorporated into the work. The contractor shall include the following items on the list:

- Small cell standards
- Pull Box
- Fuse holders
- Conductors
- Conduit
- Wireless Lighting Control and Monitoring System
- Small cell foundations
- Equipment pads
- All other items required for a complete installation

Park City will return lists that are incomplete or that include unacceptable materials to the contractor for correction and re-submission.

The contractor shall not order materials or equipment until Park City and the party or agency responsible for maintenance have reviewed and approved the materials and equipment list. Park City' approval of the list shall not relieve the contractor responsibility for the proper functioning of the completed installation.

**GENERAL:**

All work shall conform to these specifications and the National Electrical Code (NEC) when the small cell pole is owned by Park City or the Wireless Provider, or the National Electrical Safety Code (NESC) when the small cell pole is owned by Rocky Mountain Power.

The contractor and/or Wireless Provider shall keep fully informed of and comply with all Federal, State, and local laws, ordinances, and regulations, and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which may affect those engaged or employed on the work, or affect the conduct of the work. The contractor and/or Wireless Provider shall protect and indemnify Park City and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by the contractor and/or Wireless Provider, the subcontractors, suppliers of materials or services, or their employees.

Each system shall be installed as shown on the plans or as designated. The contractor and/or Wireless Provider shall furnish and install all incidentals necessary to provide a complete

working unit or system.

**CONCRETE FOUNDATION PADS AND SMALL CELL STANDARD FOUNDATIONS:**

Foundations shall be installed as shown on the plans, complete with grounding. The contractor and/or Wireless Provider shall test and report soil conditions to Park City as necessary to ensure proper installation of foundations. Foundations shall be installed at the final grade.

All anchor bolts shall be positioned by means of steel templates. The center of the template shall coincide with the center of the foundation. Anchor bolt size and 19.5- inch bolt circle shall accommodate a 16-inch equipment cabinet per manufacturer's requirements. Anchor bolt size and 23.5-inch bolt circle shall accommodate a 20-inch equipment cabinet per manufacturer's requirements.

All small cell standard foundations shall be as detailed.

Conduits shall be properly positioned and anchored before the concrete is placed. Coordinate the base setback and orientation with Park City.

All foundations shall have ground rods conforming to the NEC or NESC. All foundations on structures shall be grounded to the structural steel by a method that is in accordance with the NEC or NESC and which is approved by Park City.

Concrete shall be Class B.

Anchor bolts shall be designed by the contractor's and/or Wireless Provider's engineer or as shown on the working drawings. The threaded ends of the anchor bolts, the nuts, and the washers shall be galvanized in accordance with ASTM A153.

**ALL POLES AND CANTENNA STANDARDS:**

Metal small cell standards shall be fabricated of steel unless otherwise approved by Park City. Whenever Small Wireless Standard Metal is specified, the contractor and/ or Wireless Provider shall furnish galvanized steel. The contractor and/or Wireless Provider may furnish aluminum small wireless standards if Park City gives approval. Material type and shape of small wireless standards shall be the same throughout the design district, unless otherwise approved by Park City.

All standards shall have weatherproof cable-entrance grommets located in conformity with the type of mounting used. Metal surfaces shall be free of imperfections marring the appearance and of burrs or sharp edges that might damage the cable.

All metal poles shall be straight and shall be supplied with polecaps when applicable and shall match existing pole types as closely as possible.

Steel mast arms shall be made of Schedule 40 standard steel pipe conforming to ASTM A 53.

All steel poles, mast arms and base flanges shall be hot-dip galvanized in accordance with ASTM A 123. Units on which the spelter coating has been damaged shall be repaired as provided in

AASHTO M 36, or other approved method.

Base flanges for steel poles shall have continuous welds both inside and outside, unless otherwise permitted. Base flanges inserted into the pole and bonded shall meet the requirements for materials and strength stated herein.

Each metal standard shall be wired with a breakaway fused connector of proper capacity rating. The fused connector shall be located in the equipment cabinet. If the light standard has no equipment cabinet, the fused connector shall be located in the pole at the hand hole.

All equipment cabinets or bases shall have vandal resistant, removable access doors.

Hardware used with steel standards shall be either cadmium plated steel, hot dip galvanized steel, or stainless steel and shall be color matched to the surrounding structure where applicable.

Materials shall be of a standard line from a name brand manufacturer or as specified in this document. Electrical material shall be listed by the Underwriters' Laboratories, Inc. (UL), and shall conform to the National Electrical Code (NEC) when the street lights are owned by Park City, or the National Electrical Safety Code (NESC) when the street lights are owned by the Utility. Material shall be the same as, or compatible with, that used and accepted by the agency responsible for maintenance.

Park City may inspect all lighting material and all electrical materials and all other materials and accept or reject them at the project site. Samples may be taken or manufacturer's certifications may be accepted in lieu of samples.

Poles, equipment cabinets, and bolts shall be galvanized stainless steel. Galvanizing will be performed in accordance with ASTM 123 and meet the following galvanization and paint requirements.

1. Galvanizing will be SSPC-SP1 Solvent wiped where needed and the Galvanizing will receive a sweep blast to a uniform dull appearance. Any areas of fracture will be repaired. Any excess zinc build up should be blended to no higher than the height of a dime with no thick edges or areas that may cause paint entrapment potentially leading to a premature coating failure.

The first epoxy coat typically should be applied within 120-180 minutes of abrasive blasting. Items shall be cleaned free of blast debris before coating. Compressed air should be used to clean items; items should be free of Oil, residue, and any other contaminants/debris.

- Epoxy Primer Gray- B107989EA80K-A
- Impact Resistance Direct 100 IN/LBS @ 2.0-3.0 Mils (ASTM D2794)
- Impact Resistance Indirect- 100 IN/LBS @ 2.0-3.0 Mils (ASTM D2794)
  
- Cross- Hatch Adhesion 5B (ASTM D3359)

- Conical Mandrel 1/8" (ASTM D522)
- Pencil Hardness 2H (ASTM D3363)
- Specific Gravity 1.58 +/- 0.05 G/ML
- Theoretical Coverage 121.63 ft<sup>2</sup>/LB @ 1.0 Mil
- 60 percent gloss 75-85 (ASTM D523)

The Epoxy prime coat shall be applied on poles for an DFT Average of 5.0 Mils for the bottom eight feet, 3.0 Mils DFT above that. Arms have the epoxy prime applied for a 3.0 mil DFT. DFT readings shall be taken in accordance with SSPC-PA2.

Top coat to be applied for an DFT of 3.0 mils average unless noted otherwise. Aerosol touch up should be used for coverage on areas that were masked by a hanging device (Hanging hook or chain, etc) or used to repair small scratches or imperfections.

Poles shall be set plumb, and centered, on the small cell standard foundation using leveling nuts when installed.

Defects and scratches on painted, powder-coated, or anodized poles shall be primed and painted with a color-matched paint to match undamaged pole sections. Defects and scratches on galvanized poles shall be re-galvanized in the field.

Stainless steel mounting hardware shall be used to mount luminaires, mast arms, access doors, Antenna, equipment cabinet, and other hardware to the poles. Apply an approved zinc-based anti-seize compound to all mounting hardware prior to assembly.

Banner arms (if required) shall be incorporated into small cell standard structural design.

**CONDUIT:**

All conduit shall be installed within the City ROW and shall be at least two-inch (2" minimum) inside diameter unless otherwise designated on the plans. The contractor and/or Wireless Provider may use larger conduit than specified. If larger conduit is used, it shall be for the entire run from outlet to outlet. Reducer couplings shall not be used. Larger conduits shall be sized to accommodate the constraints established by the hole in the pole anchor base plate.

Conduit terminating in standards or pedestals shall extend approximately two inches past the foundations and shall slope toward the junction box opening. Conduit entering pull boxes shall terminate two inches inside the box wall and two to five inches above the bottom, and shall slope toward the top of the box to facilitate pulling of conductors. Conduit entering through the bottom of a pull box shall be located near the end walls to leave the major portion of the box clear. At all outlets, conduits shall enter from the direction of the run.

The ends of all conduits, whether shop or field cut, shall be reamed to remove burrs and rough edges. Cuts shall be made square and true so that the ends will butt or come together for their

full circumference.

Unless otherwise specified, conduit shall be rigid non-metallic electrical conduit currently recommended and approved by Underwriters' Laboratories, Inc. for the proposed use conforming to ASTM-F 441 schedule 40, (Schedule 80 or bored HDPE where installed under roadways).

Fittings shall be the type used outside the conduit and PVC cement welded. Submersible fittings shall connect the conduit in a manner that makes the joints watertight.

All in-grade Pull Boxes shall be polymer concrete, bottomless and tier 22 rated bolted covers. 13 inches by 24 inches and 18 inches deep manufactured by Quazite; Cat. # PG1324BA18, unless otherwise noted on the plans. Covers shall be Cat. # PG1324HH00 with stainless steel bolts and the word "ELECTRIC" molded into the top

Non-metallic conduit shall be cut with a hacksaw or other approved tool. Non-metallic conduit connections shall be the solvent-weld type.

Conduit connections at junction boxes shall be tightly secured and waterproofed. All conduit ends shall be sealed with duct seal after installation of wiring. The duct seal shall be rated for outdoor use.

When specified, conduit shall be installed under existing pavement by boring operations. Where plans show that existing pavement is to be removed, jacking the conduit is not required. Jacking or drilling pits shall maintain a minimum of two feet clear of the edge of pavement. Water shall not be used as an aid in the jacking or drilling operations.

Trenching shall be in conformance with Park City standards. Backfill shall be per Park City standards. Detectable red electrical warning tape shall be installed between six inches and 12 inches below finished grade for all underground conduit runs.

Underground conduit shall be buried a minimum of two feet below finished grade. There shall be no sag between boxes. Conduit within the City ROW shall be buried 48 inches (maximum) below finished grade.

Junction Boxes shall be placed at conduit ends, at all locations where conduit bends in a single run would equal 360° or greater per NEC requirements, and at all other locations shown on the plans. The contractor may install additional pull boxes to facilitate the work.

Excavate minimum 24 inches below base depth of each junction box, backfill and compact with pea rock to permit draining of water.

Placement and setback of the junction boxes shall be coordinated with Park City. Unless otherwise shown on the plans or directed by Park City, junction boxes shall be installed so that the covers are level with the sidewalk grade. Covers shall be flush with the surrounding finished ground when no grade is established.

Where a conduit stub-out is called for on the plans, a sweeping elbow shall be installed in the direction indicated. All conduit stub outs shall be capped.

**WIRING:**

All wiring shall be copper, 600 Volt rated, Type: Conform to the applicable UL and ICEA Standards for the use intended. Copper conductors with 600-volt insulation unless otherwise specified or noted on the drawings. Stranded conductors for No. 8 and larger, with the exception of the ground rod conductor shall be #6 AWG solid, bare, copper.

Aluminum Conductors Prohibited: Aluminum conductors will not be permitted. Insulation: Type THWN/ XHHW for underground installation in conduit, insulation minimum unless otherwise specified or noted on the drawings. Size: No. 12 minimum unless otherwise specified or noted on the drawings. Not less than NEC (NESC if Utility owned) requirements for the system to be installed.

Color Coding: Phase, neutral and ground conductors color-coded in accordance with NEC (NESC if Utility owned). Connect all Conductors of the same color to the same phase conductor as follows:

**208Y/120V-3PH-4W Color coding shall be:**

- 1) Phase = Black
- 2) Phase = Red
- 3) Phase = Blue
- 4) Neutral = White
- 5) Ground = Green

**120/240V-1PH-3W Color coding shall be:**

- 1) Line 1 = Black
- 2) Line 2 = Red
- 3) Neutral = White
- 4) Ground = Green

Unless otherwise authorized, the multiple system of electrical distribution shall be used. Conductors of the size and material specified shall be installed for control wiring, luminaire wiring, small cell equipment wiring, City IOT wiring, main circuit wiring, ground wiring, service entrance wiring, and all other wiring necessary for a complete installation.

Conductors shall be sized to prevent a voltage drop of more than three percent per feeder run. All conductors shall be installed in conduit. All power and lighting circuits shall include an insulated green grounding conductor.

A complete grounding system shall be installed for the entire lighting installation. Grounding shall consist of ground cables, conduits, grounding rods, wire or strap, and ground fittings, as required by the NEC (or NESC if Utility owned).

Type THWN conductors shall be used for all underground conduit runs. Leave sufficient lengths of branch conductors to allow conductor splices to be extracted from pole base for maintenance. Type XHHW shall be used for the service entrance conductors.

Extend three conductor SOW cable feeder leads to the luminaires from the cables in the pole base.

Install in-the-line fuses on each feeder lead. Leave sufficient lengths of feeder conductors to allow fuses and conductors to be extracted from pole base for maintenance.

Provide a No. 6 AWG solid, bare, copper wire connection to ground rod with ample length to allow connection to light standard, and system ground conductor.

Attach grounding conductor to the energy suppliers neutral at the service point. Terminate grounding conductor with less than 25 ohms ground reference at the service point. If ground resistance is greater than 25 ohms, add additional ground rod(s) or other ground reference bond to bring the resistance to under 25 ohms resistance to earth.

Provide ground rods elsewhere as shown on the drawings. Butt splices within the bases are not acceptable.

Butt splices within the bases are not acceptable.

At each pole, provisions shall be made for convenient sectionalizing of the circuits. This shall be done by providing ample length (18 to 24 inches) of branch conductor ends and performing splices using submersible type (Burndy Uni-tap connectors or an approved equal). Wire nuts are not an acceptable method for splicing. Splicing shall only be performed within the pole bases and splice boxes where applicable.

Separation of service shall be provided within the pole by conduit or dividers. Electrical wiring and fiber shall be separated by Owner within.

## **FUSES**

Each luminaire in the 120-volt system shall be fused with one 6-amp fuses. Fuse connectors shall be installed in the phase wires of their respective circuits at the pull box located adjacent to the light standards or in the pole base. The fuses shall be mounted in inline single-pole molded fuse connector/holders. The fuse holders shall be a DOT-PLUG (Catalog No. Duraline-16998), or approved equal.

Fuses shall be of the breakaway type. The contractor shall provide sufficient excess conductor length to allow withdrawal of the connected fuse holder. The grounding wires shall not be fused. Fuses and fuse holders shall be "UL" listed and shall be installed in such a manner that the fuse stays with the load side when holder is separated. In addition, the contractor shall form loops in the leads on each side of the fuse holders and so position the fuse holders so that they may be easily removed or inserted through the opening at top of pull box.

**SECONDARY SERVICE PEDESTALS**

The service cabinet shall include all equipment necessary to connect to the energy provider's overhead secondary conductors or transformer.

All-In-One commercial meter/power pedestal and non-metered/power pedestals shall meet or exceed Park City's Design Standards.

**AS-BUILT DRAWINGS:**

Contractor shall supply accurate as-built drawings of the project to Park City. Drawings shall indicate location and setback of conduit, lighting control center, and utility service point, and pole locations along the roadway measured from a reliable location.



**ATTACHMENT A: MAIN STREET DECORATIVE LIGHTS**

# Specifications

## POST DESCRIPTION

The lighting post shall consist of a one-piece fluted tapered pole, pole top tenon, anchor bolts and base plate. The post shall be welded to the square steel base plate. The post will be provided with (1) GFI weatherproof receptacle with wet location while in-use cover.

## MATERIALS

The lighting pole shall be formed from tubes conforming to ASTM A595, and have a constant linear taper of .14 in/ft. The tube's seam will have a smooth full length longitudinal high frequency resistance weld and will have no visual appearance.

## DIMENSIONS

The post shall be 20'-0" in height with a 12" square base plate. The poles handhole will be 5.19" x 7.56". The tenon will be Ø3"x9" long for arm mounting. The ELC series arm will have a span of 27" from post center to luminaire center.

## INSTALLATION

The pole shall be provided with four 1" diameter L-type anchor bolts to be installed on a Ø12" bolt circle, and shall include double nuts, two flat washers, and one lock washer, per bolt.

## LUMINAIRE DESCRIPTION

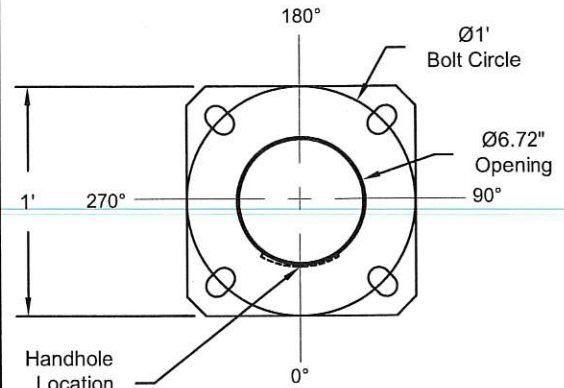
- Esplanade Teardrop
  - 150W High Pressure Sodium (mogul)
  - Multivolt 120-277V, Factory Wired For 240V Only
  - Teardrop Type IV Glass Door
  - NEMA Twistlock Photocontrol Receptacle
  - DTL Twistlock Photocontrol 120-277V
- For complete specifications see LUM\_ESPLANADE.

## Accessory Mounting Detail

	Orientation	Height
RECEPTACLE		

FILL OUT CHART DURING APPROVAL PROCESS

## Anchorage Detail



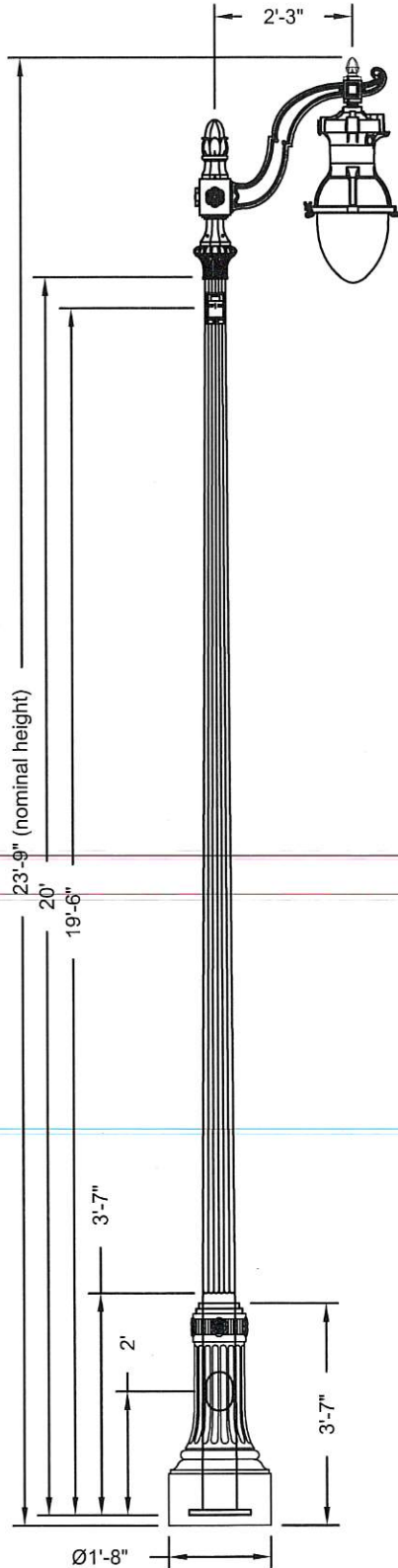
DO NOT USE TO SET ANCHOR BOLTS  
CONTACT CUSTOMER SERVICE FOR TEMPLATE

## Catalog #'s:

FL210672A200P9FPHFST - ELC27 - FGIUS - NY20CICSB - AB - RFD168565 - ESU15AHPMCPB4RP27 S-67516

Customer Signature

Date



## Park City Main Street



ORDER #: 2172-12-10126-4

TYPE:

DRAWING #:

REVISION:

REVISION DATE:

**TSG 008243**

DRAWN: KRW

ORIGIN DATE: 4/21/14

PAGE: 1 of 1

**ATTACHMENT C: PARK CITY HISTORIC DISTRICT BOUNDARIES**

# Historic Districts



**PARK CITY**  
1884

## Legend

 Historic Districts Outline

0 0.05 0.1  
Miles

