



City of Wilsonville
Small Wireless Facility Infrastructure
Design Standards

Community Development Department
29799 SW Town Center Loop East
Wilsonville, OR 97070


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1 Background and Purpose

On September 26, 2018, the Federal Communications Commission (“FCC”) passed regulations regarding the installation of small wireless facilities (“SWF”). As a result, the City of Wilsonville (“City”) has been contacted by providers and other third party companies with requests to locate small wireless technologies in the City’s public rights-of-way (“ROW”). The installation of these SWF will provide cellular and data coverage within the City to supplement the provider’s wireless network. New SWF are intended to improve the provider’s ability to meet current and future wireless needs and advance smart cities initiatives and economic development objectives.



The purpose of this document is to establish design guidelines for installing small wireless facility equipment and poles in the City of Wilsonville’s public right-of-way.

The City desires to balance the deployment of the new technology with the need to maintain the high aesthetic standards and unobtrusive quality design of the community that complements and blends into the urban form. As a utility “underground city,” Wilsonville requires the undergrounding of utility lines and further requires that any utility equipment that must be located above ground must be designed and placed to minimize adverse aesthetic and safety impacts on the site and neighboring properties. These Design Standards set forth requirements that all SWF in the public ROW must meet prior to installation within the City of Wilsonville. SWF not installed in the ROW, or other telecommunications infrastructure that do not meet the FCC definition of “small wireless facilities,” as stated in 47 CFR § 1.6002(1), are not bound to the requirements of these Design Standards; although these Design Standards may be utilized by the City when reviewing applications for those installations.

The City requires network providers and their vendors and manufacturers to consider the placement aesthetics of the existing streetlights and neighborhoods adjacent to proposed SWF locations prior to submitting an application to the City. New SWF must match existing streetlight aesthetics that apply to the area where the SWF is being installed. Any SWF design that deviates from these Design Standards must receive individual written approval from the City’s Planning Director.

Three types of SWF installations are permitted within the City’s ROW. These types include: 1) new freestanding installations; 2) replacement or retrofit of existing poles to combination SWF and streetlight; and 3) SWF attachments to existing wooden utility poles and lines (*but see* caveat for removal and undergrounding requirements on page 8 below). All SWFs are subject to approval by the City. In addition to compliance with these Design Standards, City Public Works Standards and City Code, any provider who installs a SWF in the City right-of-way or on City owned equipment will be required to enter into a lease agreement with the City.

2 Design Elements

To aid in minimizing visual impacts to the community and meet safety requirements, SWF equipment must be placed as follows:

General Requirements

1. All SWF deployments must be consistent with the City's Public Works Standards or as approved by the City Engineer.
2. Flashing lights will not be allowed, except where required by law.
3. Where required by law, any identification tags or placards placed on the structure shall be no greater than 4" X 6". Other than the identification required by law or by City standards, no other tags or placards shall be placed on the structures.
 - a. SWF must include signage that accurately identifies the equipment owner/operator, the owner/operator's site name or identification number and a toll free number to the owner operator's network operations and emergency center.
 - b. SWF must include signage required by law. Radio Frequency (RF) notification signs must be placed where appropriate, and not at pedestrian eye level, unless required by the FCC or other regulatory agencies.
4. SWF must not damage street trees. If pruning is required, the City must be notified of the requested pruning and if the pruning is allowed, it must be conducted consistent with ISA Arboricultural standards and under the supervision of a licensed arborist, approved, in writing, by the City, and at the telecommunication company's expense.
5. Cooling fans must not be installed unless required by law.
6. The City reserves the right to attach any signs (including, but not limited to, no parking signs) to any City-owned poles utilized as SWF within the public ROW that the City deems appropriate, in its sole discretion.

General Requirements for Equipment and Antenna

1. SWF equipment must be installed in a manner reasonably deemed by the City's Planning Director to be the least obtrusive with regard to appearance, size, and location, which will require a provider to demonstrate that the manner in which it proposes to fill a gap in coverage services meets the City's aesthetic requirements.
2. All SWF equipment located in the City's ROW shall be located to meet all Americans with Disabilities Act ("ADA") requirements. All SWF equipment located in the City's ROW must be located in a way that does not obstruct pedestrian or vehicular travel. The

equipment cannot interfere with the operation of signal lights, signage, streetlights, street furniture, fire hydrants, stormwater facilities (including planters), stormwater/sanitary/ water mains or service laterals, water meters, or business district maintenance. SWF equipment cannot conflict or interfere with the healthy growth of street trees or other City required trees.

3. SWF Equipment must be located within the pole and/or undergrounded, except in the case of use of a permitted existing wooden pole where the equipment is in a strand-mounted enclosure. For an equipment cabinet within a pole, the portion of the pole encasing the equipment shall not exceed a diameter of 16” and the height of 7.5’ from the foundation of the pole. All other equipment that will not fit within the base of the pole must be undergrounded. The combined size of all equipment cannot exceed 28 cubic feet. If an equipment cabinet within a pole is utilized, there must be a smooth, aesthetically pleasing transition between the top of the cabinet and the rest of the pole, as depicted in the “appropriate deployment” examples below. All transitions from the base of the pole to the upper portion of the pole shall have no more than a 1.5 inch flat horizontal surface.
4. All cables, wires and other connectors must be routed through conduits located within the pole, except in the case of a wooden pole, which is described below.

a. Underground Utility Infrastructure:

- i. All structures and their components must maintain the following minimum separation distance:
 - 1) 5 linear feet from water lines and meters;
 - 2) 10 linear feet from fire hydrants;
 - 3) 5 linear feet from storm and sanitary sewer lines;
 - 4) 1 linear foot from telecommunications equipment;
 - 5) 1 linear foot from cable television equipment; and
 - 6) 10 linear feet from all other utility infrastructure not specifically listed above.
- ii. Any structures that deviate from these distances, must receive individual written approval from the City, which may be granted or denied in the City’s sole discretion unless such denial would have the effect of unreasonably precluding coverage to an area.
- iii. No structure or its components are allowed to be located in a public pipeline easement, unless otherwise approved, in writing by the City in its sole discretion.

5. All structures and components must be designed for a minimum 155 mph wind velocity, in accordance with AASHTO's Standard Specifications for Structural Supports for Highways Signs, Luminaires and Traffic Signals.
6. City employees, contractors hired by the City, and utility providers must have the ability and right to easily shut off radio signals and power while working on poles. The applicant must assure that a clear, simple and accessible disconnect is provided. An emergency response contact name and number for the provider must be provided.
 - a. Each streetlight pole must be wired with a breakaway fused connector of proper capacity rating. The fused connector shall be located in the equipment cabinet within the pole. If the streetlight has no equipment cabinet, the fused connector shall be located in the pole at the hand hole.
7. The SWF antenna shall be contained in a cantenna. A "cantenna" is an antenna housed in a cylindrical enclosure (see examples on pages 11 and 12 below). The cantenna must be mounted directly at the top or on top of the pole. A smooth transition between the upper pole and cantenna is required. The cantenna should be a maximum of 14" diameter and should not exceed 48" in height.

General Requirements for Collocation/Replacement Poles

1. All SWF collocated on streetlight poles must remain the same height as the current pole, excluding the height of the cantenna.
2. All SWFs collocated on City streetlights are subject to the indemnification provision found in WC 4.813(.05), in addition to any and all other requirements contained within WC 4.800-4.814 and the specific lease agreement.

General Requirements Regarding Location

1. The City encourages SWF to be installed in the following locational order, from most preferred to least preferred. In performing the alternative site analysis required by WC 4.801(.03), an applicant will prioritize the proposed SWF location as listed in (a) through (e) below. SWF are strongly discouraged in residential zones. The applicant must clearly demonstrate the necessity to install in the residential zones before being permitted. The following zones are as defined in WC Chapter 4.
 - a. Industrial Zones, except residential areas within the industrial zones.
 - b. Arterials and collector street right-of-ways.
 - c. Public Facility Zones.
 - d. Commercial Zones, except residential areas within the commercial zones.
 - e. Residential Zones.
2. SWF are not allowed on decorative streetlights (including but not limited to Westbrooke, Town and Country, Acorn). SWF may be installed on shoe box style and cobra head

- style streetlights. Any other applications for collocation within the ROW must be approved, in writing, by the City. For safety, the provider may be required to replace existing streetlights poles, at the provider's expense, if the City Engineer determines that placement on an existing pole is a safety risk or a maintenance issue.
- a. Where a comprehensive streetlight design standard exists along a street where a SWF is proposed, the SWF must meet the design standards of the adopted streetlight design.
 - b. When the City adopts a comprehensive streetlight design change along a street or in a neighborhood where an existing SWF exists, the owner of the SWF must coordinate with the City to remove its SWF and, if desiring to continue to provide a SWF in the same general location, must re-apply to the City for a new SWF either collocated or on a standalone pole as provided in these Design Standards and WC 4.800-4.814.
 - i. In such circumstances, Planning Application Review Fees and Technical Design Review Fees will be waived by the City.
 - ii. A new pole will be provided at the City's expense that meets the new design standards and the SWF owner will be responsible to relocate the SWF to the new pole.
 - c. The City will make a good faith effort to notify an owner of a collocated SWF or an applicant for a future collocated SWF of any prospective or known streetlight design changes, but is not liable for failure to notify the owner or applicant.
3. The applicant must provide documentation from a licensed Professional Engineer specializing in Radio Frequency Engineering, that an installation will not interfere with City public safety radio systems, traffic signal, emergency signal control devices, radio read water meters, Supervisory Control And Data Acquisition (SCADA) systems, smart lights or any other unforeseen interferences. Interference with previously permitted private systems is also not allowed unless otherwise negotiated and agreed to, in writing, with the private provider.
 4. No SWF installations will be permitted within 50' of a signalized intersection as measured from the nearest signal pole.
 5. Any SWF installations proposed within 50' of a fire station must receive prior written approval from Tualatin Valley Fire and Rescue.
 6. Any new pole installations for use by a SWF must not impede any other functional capacity or capability of the adjacent right way or private property (i.e. poles must be located so not to impede storm water flow or treatment, impair the ability of an owner to effectively and efficiently maintain their property).

7. SWF shall not be located in stormwater treatment facilities.

Wood Pole Requirements

1. SWFs cannot be attached to wood poles located in the Wilsonville Old Town neighborhood because the attachments are not consistent with the unique historical aesthetics and pose safety risks to pedestrians or vehicle traffic.
2. In the case of wooden poles, all external conduits, conduit attachments, cables, wires and other connectors must be concealed from public view in a strand-mounted shroud.
3. Equipment attachments to wood poles must be bolted to the pole or installed using stainless steel banding straps.
4. SWF can only attach to allowed existing wooden poles. Applicants are not allowed to install new wooden poles within the City.
5. If an existing overhead utility is placed underground, the owner of the SWF must coordinate with the utility to remove its SWF and, if desiring to continue to provide a SWF in the same general location, must re-apply to the City for a new SWF either collocated or on a standalone pole as provided in these Design Standards and WC 4.800-4.814. All City fees will apply to any such reapplication.

Freestanding Pole Requirements

1. All SWF equipment, excluding the antenna, shall be housed internal to an equipment cabinet in the base of the pole or undergrounded. SWF equipment cannot be strapped or attached to the outside of any pole.
2. Freestanding poles shall not be located along the frontage of any building that is deemed a historic building under a federal, state, or local law designation.
3. Freestanding poles must be located at least 250' from any other freestanding pole regardless of provider or owner.
4. Freestanding poles shall have the same aesthetic appearance, i.e. color, material, pole design, as the nearest pole located within the prospective area, excluding wood poles, unless otherwise approved, in writing, by the City.

Freestanding Poles in Residential Areas

1. When and where allowed due to coverage necessity, Freestanding poles shall be located on corners or along property lines between lots and at least five feet (5') from any driveways, curb cuts or other access points, unless otherwise approved, in writing, by the City.

Freestanding Poles in Commercial and Industrial Areas

1. Freestanding poles shall not be located in front of storefront windows, primary walkways, primary business entrances or exits, or in such a way that would impede deliveries to the business.
2. New freestanding poles installations may be in alignment with existing trees.

3 Deployment Examples

Below are examples of some appropriate and inappropriate SWF deployments, based on these Design Standards.

Appropriate Deployments

Collocations

Cobra Head Light Pole
Acceptable:

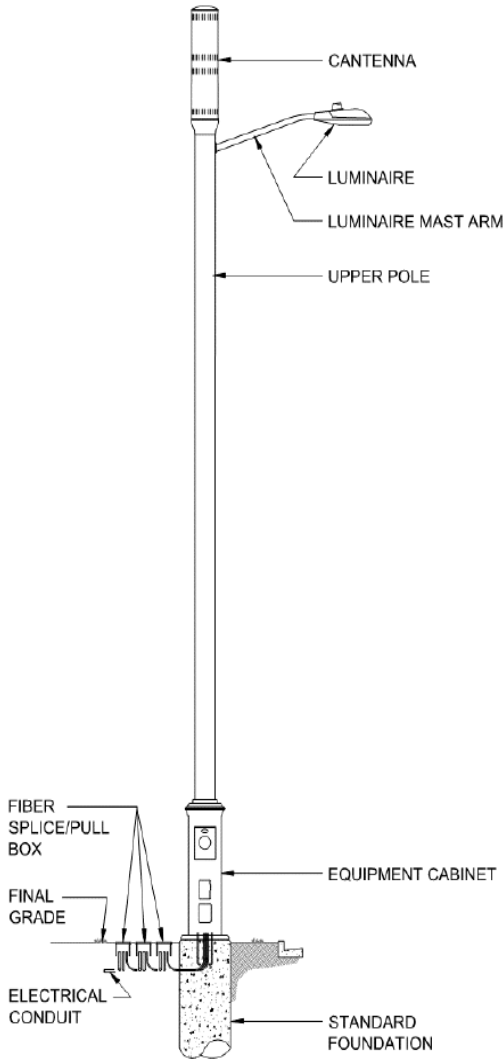


Shoe Box Light Pole
Acceptable:

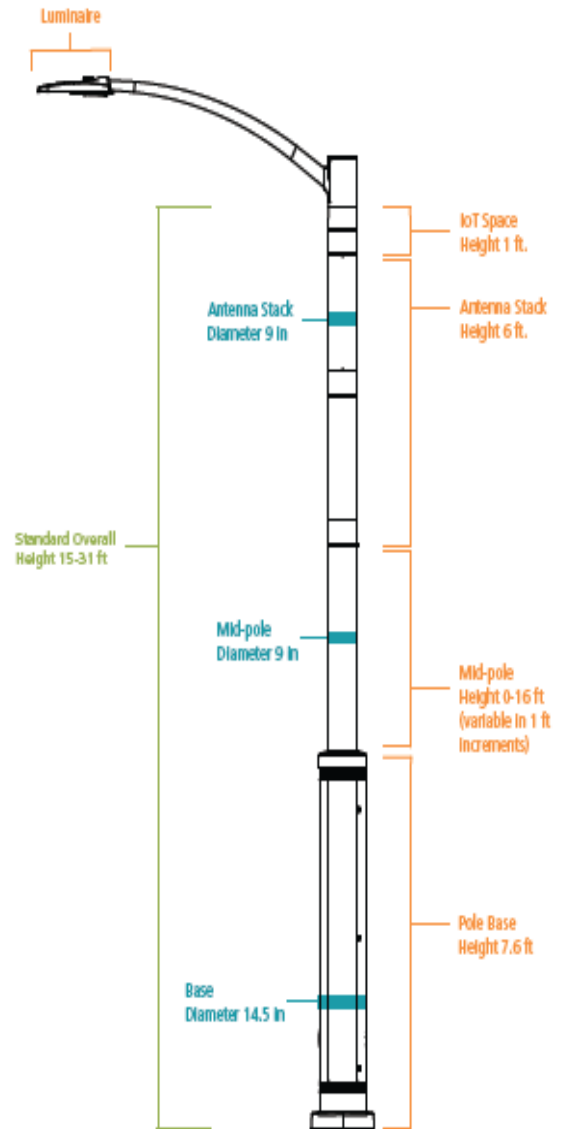


SWF Collocation on Cobra Head Light Pole

Acceptable:

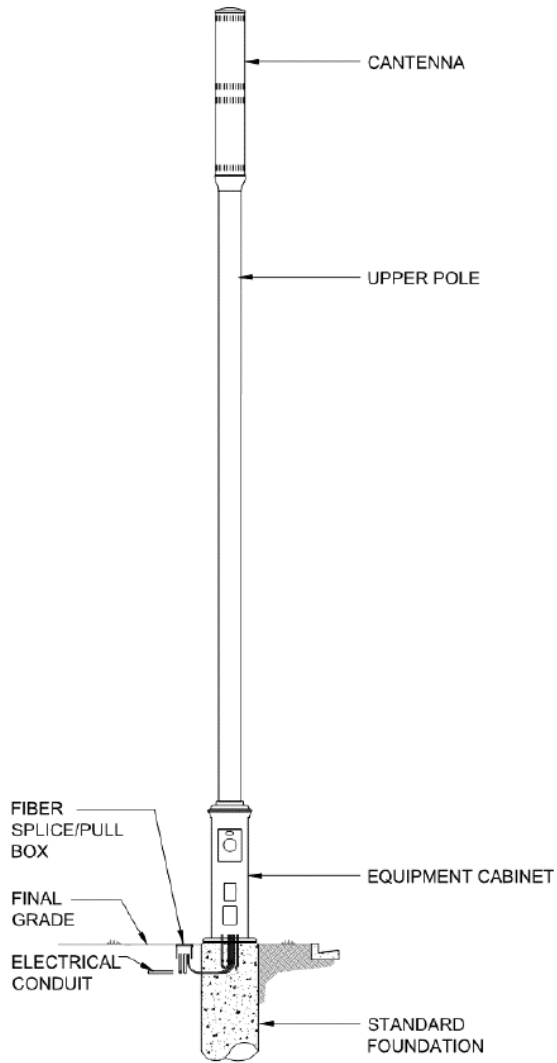


Acceptable:



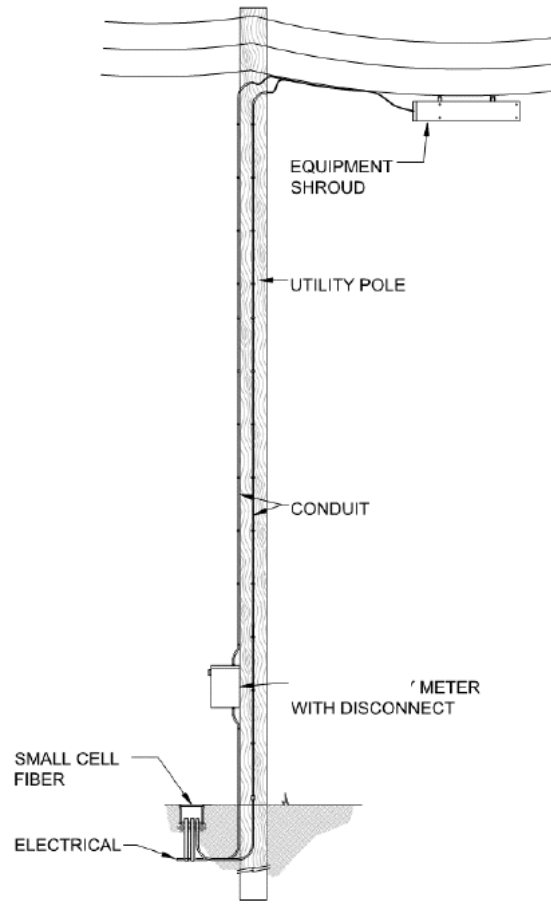
Freestanding Pole

Acceptable:



Wood Pole

Acceptable:



Locations

Residential Zone (if allowed)
Acceptable:



Streetscape
Acceptable:



Commercial Zone
Acceptable:



Inappropriate Deployments

No SWFs on Decorative Light Poles

Town and Country

Not Acceptable:



Acorn

Not Acceptable:



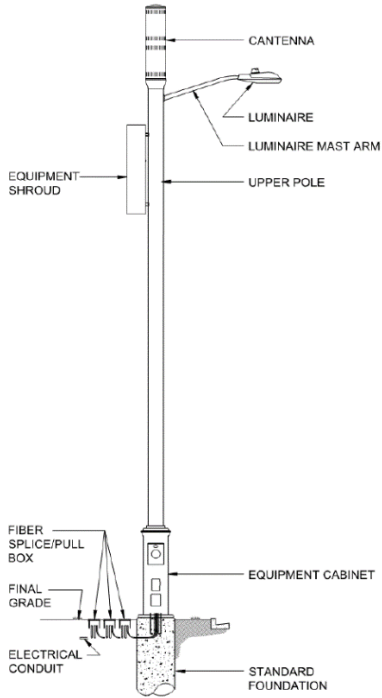
Westbrooke

Not Acceptable:

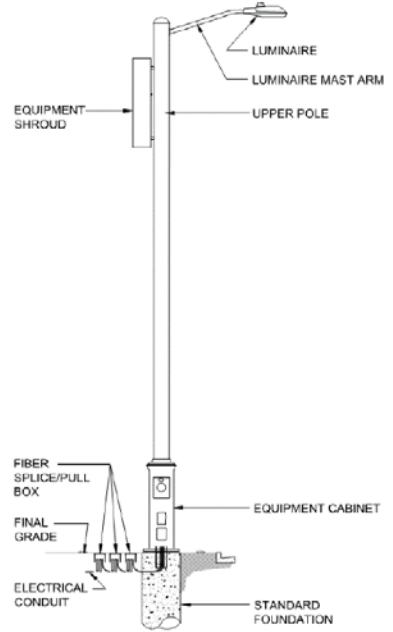


No Visible Equipment Shroud Attached to Pole

Not Acceptable:



Not Acceptable:



Not Acceptable:



Not Acceptable:



Not Acceptable:



Not Acceptable:

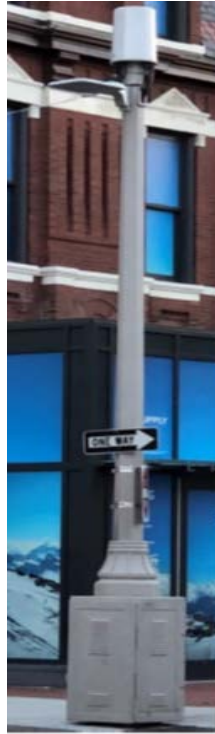


No Ground Mounted Equipment without Smooth Transition to Pole

Not Acceptable:



Not Acceptable:



Not Acceptable:



No Equipment Shroud or Antenna Attached to Wood Pole (Must be Strand-Mounted)

Not Acceptable:



Not Acceptable:

