City of San Diego

Wireless Communication Facility Guidelines

Development Services Department,
Economic Development & Project Management Division
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This information, or document (or portions thereof), will be made available in alternative formats upon request.
Introduction

In the City of San Diego, cell phone antenna base stations are referred to as Wireless Communication Facilities (WCF) and are defined as the antennas and equipment that transmit and receive data for cell phone and other mobile communication services. The Telecom Section of the Economic Development & Project Management Division of Development Services processes WCF applications from the entitlement and discretionary review to building permit issuance and inspection. There are approximately 2,000 WCF in the City. The Wireless Communication Facilities web page provides links to additional reference material.

WCF Requirements

Council Policy 600-43 and the City’s General Plan provide guidance on the design and placement of WCF within the City. The San Diego Municipal Code – Land Development Code (LDC) Section 141.0420, “Wireless Communication Facility (WCF) Regulations,” regulates WCF and Information Bulletin 536 provides information on the procedures and submittal requirements for WCF permit applications. This document, the WCF Design Guidelines, should be utilized in conjunction with the WCF Regulations. The guidelines do not supersede the regulations found in the LDC, but provide guidance to stakeholders involved in the design and development of WCFs in the City of San Diego. The guidelines are used as a tool for processing applications for WCF for both new facilities and those with expired permits.

The guidelines prescribe clear, reasonable, and predictable criteria to assess and process applications in a consistent and expeditious manner.

The guidelines establish a framework of opportunities for creating desirable WCF in the City.

General Plan – Wireless Facilities

The City of San Diego’s General Plan addresses Wireless Facilities in section UD-A.15.

Minimize the visual impact of wireless facilities.

- Conceal wireless facilities in existing structures when possible, otherwise use camouflage and screening techniques to hide or blend them into the surrounding area.
• Design facilities to be aesthetically pleasing and respectful of the neighborhood context.
• Conceal mechanical equipment and devices associated with wireless facilities in underground vaults or unobtrusive structures.

Federal Regulations

FCC Shotclock Ruling
The FCC’s Shotclock Ruling establishes a series of deadlines for WCF applications. The City works with WCF applicants to meet required deadlines.

Telecommunications Act of 1996
Section 704 of the Telecommunications Act of 1996 provides a framework for the City’s review of WCF.

Application Review
The City’s review and approval or denial of WCF applications “shall not unreasonably discriminate among providers of functionally equivalent services,” and “shall not prohibit or have the effect of prohibiting the provision of personal wireless services.”

The Act requires that the City act on a permit application request in a reasonable period of time and that any decision to deny a request to, “place, construct, or modify [a WCF] shall be in writing and supported by substantial evidence contained in the written record.”

In conjunction with other regulations, such as the California Permit Streamlining Act, the FCC’s Shotclock Ruling, and the California Environmental Quality Act (CEQA), the City processes WCF applications in an expeditious manner in compliance with all applicable regulations.

Environmental Effects of Radio Frequency (RF) Emissions
The Act prohibits the City from regulating the “placement, construction, and modification of [WCF] on the basis of the environmental effects of RF emissions to the extent that such facilities comply with the [FCC’s] regulations concerning such emissions.”

The City requires that WCF applications provide a report, prepared by a qualified RF engineer, demonstrating that the WCF will comply with the FCC requirements.

LDC 141.0420 – Wireless Communication Facility Regulations

Required Permits
The zone, site characteristics, and development proposal will determine the permits required for a WCF. For example, project sites with Environmentally Sensitive Lands may require a Site Development Permit (SDP), projects in the Coastal Overlay Zone may require a Coastal Development Permit (CDP), and projects that deviate from the zone development regulations or WCF Design Requirements may require a Planned Development Permit (PDP) to request a deviation.

In general, Council Policy 600-43 and the WCF Regulations encourage the placement of WCF in commercial and industrial zones. The regulations permit WCF in commercial and industrially zoned land
with a Process 1 Limited Use approval, which is decided at the Staff-level. Residentially zoned land with a residential use is one of the least preferred areas for siting WCF and a Process 4 Conditional Use Permit (CUP), decided by the Planning Commission, is required for these projects.

**Design Requirements**

Land Development Code (LDC) Section 141.0420(g) specifies regulations which apply to all WCF. As different design options are explored in the guidelines, specific LDC Design Requirements will be cited. The first two design requirements are applicable to all WCF:

1. WCF shall utilize the smallest, least visually intrusive antennas, components, and other necessary equipment.

2. The applicant shall use all reasonable means to conceal or minimize the visual impacts of the WCF through integration. Integration with existing structures or among other existing uses shall be accomplished through the use of architecture, landscape, and siting solutions.

Each application for a WCF is evaluated based on the proposed design, location, permits required, and other site-specific characteristics. Architecture, landscape, and siting solutions are all used in evaluating WCF applications.

**Landscape**

Utilize landscape architecture to improve views of the WCF as seen from the public right-of-way and neighboring properties by screening, buffering, and blending WCF with the surrounding environment. All landscape should conform to the City’s Landscape Regulations and the Land Development Manual: Landscape Standards. Landscape Plans submitted for review should include the required components identified in Information Bulletin 536.

Existing and proposed landscape material can be used to screen and integrate a WCF. Street trees are one type of landscape element that can be incorporated into a project’s design to help screen and integrate a WCF with the neighborhood setting.

Landscape screening should be provided around exterior equipment enclosures. The planting quantity and size should be such that 100% screening is achieved within two years of installation (Land Development Manual: Landscape Standards, Section 1.2).

When antennas are proposed to be located on faux trees or shrubs, the existing and proposed live trees of a similar size and species are required. Additional trees should be added to create a grove-like appearance that effectively integrates the faux tree.

*Figure 2 Tree topping is prohibited.*
Adequate planting areas should be provided to allow the trees to grow to a similar size as the faux tree. The WCF’s design should be consistent with the existing landscape plans for the project site. Any trees proposed for removal should be replaced in-kind or with sufficient replacements.

When underground vaults are proposed, they should be located to minimize disruption to the placement of street trees. Adequate planting depth should be provided between the top of the vault and the finished grade to allow plants to grow in a healthy condition.

Removal, replacement, or installation is subject to review by the City’s Urban Forester in accordance with San Diego Municipal Code Section 62.0600.

Tree “topping” or the improper pruning of trees is prohibited. The improper pruning of trees can result in a variety of problems such as irregular, poorly attached sprouting branches, make the tree more susceptible to insect attacks and disease, and tree death. Topping of trees also reduces their effective screening of WCF’s.

Coastal Height Limit (30’ Height Limit/Proposition D)

For antennas proposed over the 30-foot height limit on previously conforming structures, wireless carriers must demonstrate that a significant gap in service coverage exists to exceed the height limit. Antennas allowed above this height limit are subject to the following requirements:

- Antennas must be within the existing structural envelope of the building, unless the applicant can demonstrate that the existing building construction does not allow this.
- Plans must demonstrate that the design is the least intrusive method of installation in terms of aesthetics and height.

Equipment Associated with WCF’s

Cable Trays

1. The cables should be routed internally within the existing building envelope. If it can be demonstrated that the building construction does not allow internal routing of the cables, the cable tray must be the minimum size necessary to accommodate the cabling.
2. The cable tray should be located inconspicuously. Place in the corner of a building or on the side or rear of the building, away from the public right-of-way, where it will have less of a visual impact. The cable tray can also be designed as a decorative building feature.
3. When more than one cable tray is exposed on a building exterior, place and space consistently and appropriately to not disrupt the building design.
4. All coaxial cable must be placed underground. No above-ground cable or cable bridges are permitted.
5. All coaxial cable must be routed directly from underground up through the pole; “doghouse” cable covering structures are not an acceptable option.
6. All exterior cable trays must be painted and textured to match the building.

**Enclosures & Equipment**

1. Architectural integration is required for equipment enclosures and screening walls.
2. Utilize similar building materials, color, accents, and texture as the primary building. If no buildings exist on site, ensure that the proposed structure is designed to blend into the environment.
3. Minimize exterior appurtenances. Use a screen wall and landscape for screening.
4. Utilize an open-top with an architectural element, like a trellis, to eliminate the need for air conditioning units.
5. Utilize passive cooling and incorporate shade trees to reduce the level of electricity used for cooling purposes and reduce the noise output.
6. Existing topography or landscape can assist in minimizing views of equipment.
7. Gates should be constructed of similar or complimentary materials as the enclosure, but must maintain opaque qualities. Expanded metal with pinholes is an example of a material that may be used.
8. Fences should be constructed of decorative materials that compliment and blend with the surroundings. Chain-link fencing and barbed wire are not permitted.
9. Anti-graffiti finishes shall be applied to all solid fences, walls, and gates. Design techniques should be employed to reduce the opportunities for graffiti.
10. All roof-top equipment must be screened.

**Generators**

1. Architectural integration is required.
2. To the extent possible, generators shall be enclosed along with the existing equipment. Similar to equipment enclosures, the screening for the generator shall utilize similar building materials, colors, accents, and textures as the primary building. If no buildings exist on site, ensure that the building is designed
to blend in with the environment.

3. Use a screen wall and a combination of landscape material for screening.

4. Fences should be constructed of decorative materials that compliment and blend in with the surroundings. Chain-link and barbed wire fencing are not permitted.

5. Anti-graffiti finish shall be applied to all solid fences, walls, and gates.

6. A Noise Analysis may be required to demonstrate that the generator will operate within allowed noise limits.

**Completely Concealed Facilities (CCF)**

Additions or modifications to buildings should always consider the existing design, bulk, scale, and symmetry of the building.

A Complete Concealment Facility (CCF) WCF may receive a permit without an expiration date if all of the following criteria are met:

1. The proposed antennas must be fully recessed/concealed from all sides within a structure that is architecturally compatible with the existing building.

2. The proposed coaxial cable tray must be routed internally. Exterior mounted coaxial cable trays designed to replicate an existing vertical element may be considered on a case by case basis. Standard cable trays painted and textured to match the existing building do not meet the intent of the CCF and will receive an expiration date.

3. The associated equipment must be completely concealed inside an “existing structure” or inside an underground vault. Concrete masonry unit (CMU) walls and prefabricated facilities do not meet the intent of a CCF. Equipment enclosures designed to replicate existing buildings and structures may be considered on a case by case basis.

**FRP Installation**

Fiberglass Reinforced Plastic or Radio-Frequency (RF) transparent materials can be used to screen and integrate a WCF with an existing building.
These types of installations are subject to the following requirements.

1. No visible transition lines between the old and new surfaces are permitted.
2. No exposed construction braces.
3. Roof-top additions must be concealed on all sides.
4. New architectural features such as columns, pilasters, corbels, or other ornamentation that conceal antennas may be used if it complements the architecture of the existing building.
5. Faux chimneys must include architectural details and trim, if such details exist on the building, or if it helps to improve the appearance of the WCF.

**Façade Mounted Antennas**
Façade mounted antennas attached to existing structures must consider the scale, symmetry, and design of the structure and minimize the addition of bulk and clutter to a building.

**Water Tanks/Standpipes**
Antennas can be mounted to water tanks or standpipes.

1. Pipe-mounts and brackets may not exceed the width or length of the antennas.

Figure 10 Antennas are concealed behind the building signage/wall.

Figure 11 This is an example of poorly integrated antennas that would not be supported by staff.

Figure 12 This is an example of a poor transition between RF and non-RF building material which is not acceptable.

Figure 13 This is an example of inappropriate facade mounting with exposed brackets and mounting apparatus.
2. All conduits must be appropriately concealed.

**Building Façade**
Antennas can be mounted to the sides of a building as long as the antennas do not interrupt the architectural lines of the building. When multiple carriers are located on a building with different antenna sizes, a more successful design option can be to locate antennas behind RF-transparent screening for a cleaner appearance.

1. Utilize the smallest mounting brackets available in order to provide the smallest offset from the building. If the brackets are 4”, then the space between the building face and the back of the antenna should not exceed 4”.
2. Utilize skirts or shrouds on the sides and bottoms of antennas in order to conceal mounting hardware, create a cleaner appearance, and minimize the visual impact of the antennas. Gaps between the antennas and the screens are not permitted.
3. Paint and texture antennas to match the adjacent building surfaces.
4. To the greatest extent possible, employ a symmetrical, balanced design for all façade mounted antennas.
   a. The first provider on a structure will dictate the antenna length, width, and placement. All succeeding applications will be required to ensure consistency and symmetry in placing antennas on the exterior of the structure.
   b. No interruption of architectural lines or horizontal or vertical reveals is permitted.
5. Antennas should be no longer or wider than the façade on which they are proposed.
6. No exposed cabling is permitted.
7. No exposed mounting apparatus may remain on a building façade without the associated antennas.
8. Panel antennas must be mounted no more than 12 inches from the building façade.

**Ground Mounted Facilities**
This section addresses flag poles, towers, ball field lights, light poles, signs, pipe mounts, and public right-of-way elements.

1. Comply with all development regulations for the zone.
2. Design structures to the minimum height necessary, but apply for a Planned Development Permit when a height deviation is needed. Height deviations will be considered in exchange for a well designed, integrated project, where the required findings can be made in the affirmative.
3. Structures should be architecturally integrated into environment and harmonize with the property on which it is proposed.
4. Community Planning Group support of existing WCF does not negate the need to comply with the regulations.

**Pipe Mounted Antennas**
1. Use in conjunction with a backdrop (such as a hillside with landscape or a structure) with sufficient landscape to screen the antennas.
2. Add landscape material to screen and integrate the antennas.
3. Consider installing antenna socks or faux shrubs to conceal the antennas.
4. All pipes, conduits, and mounting devices must be painted to match and blend with the surroundings.
5. All conduits should be routed with minimal looping and visibility.

**Faux Landscape**
1. Use in an existing landscape setting with trees at a similar height and species.
2. If the site is void of tall trees or landscape, create a landscape setting that integrates the faux tree with additional live planting of a similar species and varying heights.
3. Faux trees in non-urban settings should be species regionally appropriate to San Diego that blends with established plant communities.
4. Utilize faux trees that replicate the shape, structure, and color of live trees.
5. Provide detailed specifications during plan review.
6. Ensure that the top of the faux tree does not exceed allowed height on approved plans.
7. All coaxial cables must be routed directly from the ground up through the pole. No “doghouse” cable coverings are permitted.
8. All faux trees must incorporate a sufficient number of branches (no less than 3-branches per foot) and design materials so that the structure is as natural in appearance as possible.
9. Antenna socks are mandatory for all antennas (microwave dish, RRUs/RRHs, TMA, and similar components) located on a faux tree (not applicable for faux palm trees).

**Flag Poles**
1. Poles 30-feet or less in height should not exceed 9-inches in diameter.
2. Consideration will be given to poles higher than 30-feet that exceed the 9-inch diameter limitation if it can be demonstrated that the flag pole is located in a suitable environment and appropriately tapered in order to maintain the appearance of an authentic flag pole.
3. Antennas must be enclosed within the pole or a radome.
4. Comply with the U.S. Flag Code.
5. Utilize in conjunction with existing or added landscape planting.
6. Decorate elements must be included in the overall height measurement.
7. All coax must be routed directly from the ground up through the pole. No “doghouse” cable coverings are permitted.
8. The overall height and diameter of the flag pole must be compatible with the surrounding area.
9. Not to be used as a design option to gain height in areas where multiple flag poles already exist.

**Light Standards**

**Light Standards**

1. Use only in parking lots or along pedestrian paths. Not to be used as a means to gain height in areas where a light standard is unnecessary.
2. New light standard design must be consistent and compatible to the surrounding area.
3. To the extent feasible, match design, material and color of existing light poles.
4. If possible, replicate height of existing poles. Significant height increase of 5’ or more can only be supported if the design integrates with the surrounding neighborhood.
5. If utilizing more than one pole, space appropriately throughout property. Consideration must be given to existing vertical elements before proposing new light pole(s).
6. All cables and conduit to and from the light standard is expected to be routed from underneath the caisson. No doghouse cable coverings are allowed.
7. All antennas shall be concealed inside a radome of a reasonable diameter. The length of the radome shall not be greater than 1/3 length of the height of the proposed light pole. (Provide this calculation on the plans.)

**Sports Field Lights**

1. Utilize existing ball field lights, upgrade existing light standards, or add ball field lights to a park planned for field lighting.
2. Mount antennas as close as possible to the pole and below the light source.
3. Minimize visibility of coaxial cables by routing through pole and eliminating loops for cable entry and exit.
4. Paint antennas and mounting apparatus the same color as the pole.
5. All cables and conduit to and from the light standard are expected to be routed from underneath the caisson up into the pole. “Doghouse” cable coverings may be allowed in limited circumstances in situations where they are minimally visible and designed to integrate with the existing environment.

**Towers (Signs & Monuments)**

1. Design towers to architecturally blend with the building/structure/setting in which it is proposed.
2. The design should utilize the lowest height possible.
3. Significant advancements in technology have allowed carriers to camouflage tower facilities within an integrated design.
4. A separate sign permit must be obtained to demonstrate that the proposed sign is permitted.
Right-of-Way Installations

Distributed Antenna Systems (DAS)
1. To the extent possible, all wireless communication carriers should consider utilizing Distributed Antenna System (DAS) as a form of installation to right of way facilities. Such systems are especially encouraged when a search ring is identified within a residential zone.
2. All equipment associated with a DAS installation must be installed directly onto an existing right of way pole structure painted and textured to match.

Full-Size Antennas on Light or Traffic Standard
1. The new or replacement poles should match height, color and material of the original or adjacent poles.
2. Exterior panel antennas should not exceed the height of the pole.
3. Utilize brackets that allow antennas to be mounted no more than 4” from the pole.
4. No looping cables.
5. All replacement or new poles must comply with all applicable City regulations and policies.
6. Equipment should be minimally visible through the use of an underground vault. If this is not feasible, above-ground cabinets must be designed and located in an area with minimal visual impact.
7. All disturbed landscape shall be replaced in-kind and areas of bare or disturbed soil must be revegetated in accordance with the Landscape Regulations.

Temporary Use Permits (TUPs)
Two Temporary Use Permits (TUPs), for 180-days each, are permitted by LDC Section 123.0402. An application must be submitted, reviewed, and approved by staff for all temporary wireless communication facilities. A TUP can only be issued for the following reasons: A TUP may be issued for a WCF where the WCF would provide service to a citywide public event or where an emergency arises that is not the result of any act of the WCF provider and is otherwise determined by the City Manager to be an emergency.

A TUP is required for Cell-on-Wheels (COWs).