

City of Sacramento
Small Cell Design & Deployment Standards

1. Purpose and Intent:

- A. These design and deployment standards are intended to, and should be applied to, protect and promote public health, safety and welfare, and balance the benefits that flow from robust, advanced wireless services with the City's local values, which include without limitation the aesthetic character of the City, its neighborhoods and community. These standards are also intended to reflect and promote the community interest by (1) ensuring that the balance between public and private interests is maintained; (2) protecting the City's visual character from potential adverse impacts and/or visual blight created or exacerbated by small wireless facilities and related communications infrastructure; (3) protecting and preserving the City's environmental resources; (4) protecting and preserving the City's public rights-of-way and municipal infrastructure located within the City's public rights-of-way; and (5) promoting access to high-quality, advanced wireless services for the City's residents, businesses and visitors.
- B. The City has researched and adopted the following design standards for small wireless service facilities. Given the rapidness with which small wireless service facility technology may change, City staff are available to meet with wireless carriers and their representatives to discuss designs standards that deviate from those listed in this section. The intent of these designs standards is to establish objective camouflage and concealment elements and other standards for small wireless service facilities. The Public Works Director may waive or impose additional standards if doing so is conducive to the site being the least intrusive, maximally blending with the natural and built environment of the City and protecting the aesthetic character of the City.

2. General Requirements

- A. The following requirements shall apply to all small wireless service facilities in the public right-of-way:
 - i. Small wireless service facilities shall comply with Sacramento Municipal Code Chapter 8 Noise.
 - ii. All facilities shall have subdued colors and non-reflective materials that blend with the materials and colors of the surrounding area and structures to the satisfaction of the City.
 - iii. The small wireless service facility shall be of the least intrusive design possible and occupy the least amount of space in the right-of-way possible but in no event shall exceed the limits prescribed in these design standards unless otherwise permitted in writing by the Public Works Director.
 - iv. Equipment:
 - a. Above ground electrical meter facilities are prohibited. The terms

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of the Billing Agreement for Small Cell Connections to City Streetlights (“SMUD Services Agreement”) between the City, the Sacramento Municipal Utility District (SMUD), and each Telecommunications Service Provider (TSP or carrier), requires all small cell services shall be energized via a connection to the City’s streetlight electric service facilities, which is non-metered. Metered electric service may be used with written approval of the Public Works Director and SMUD in the rare case here non-metered service may not be available.

- b. With the exception of streetlight pole base shrouds as described in these design standards, equipment installed at grade is prohibited.
 - v. Vaults and pull boxes shall be installed flush to grade and installed per the applicable requirements as stated in the City’s Standard Construction Specifications.
 - vi. Signage must be included that accurately identifies the site owner/operator, the owner/operator’s site name or identification number and a toll-free number to the owner/operator’s network operations center. Small wireless facilities and other infrastructure deployments may not bear any other signage or advertisements unless expressly approved by the City, required by law or recommended under FCC or other United States governmental agencies for compliance with RF emissions regulations.
 - vii. Lighting or any type of illumination of facilities is prohibited unless permitted in writing by the Public Works Director.
- B. Visual Criteria. Undergrounding of all wireless facilities, except for antennas, is required except where permitted in writing by the Public Works Director. However, when sufficient space in the public right of way does not exist to do so, their view impacts to surrounding properties shall be minimized. Camouflaging and integrating above-ground wireless facilities by using non-reflective materials and colors that blend in with their surroundings is required. When placed above-ground, wireless equipment shall either be completely contained and concealed within the interior of an integrated streetlight, and/or attached within a shroud at the top of an existing utility pole in a manner where their protrusion is minimized.
- C. Carriers should consider siting as much as possible on existing infrastructure or City assets. Attachments shall be limited to mast arm streetlights on Caltrans Type-15 Poles (see Section 3, below).
- D. No Interference with Other Uses. A facility shall not be located within any portion of the public right-of-way that interferes or may interfere with City and emergency operations, and pedestrian and vehicular access. Small cells and any associated antennas, accessory equipment or improvements shall not be located in any place or manner that would physically interfere with or impede access to any: (1) worker access to any above-ground or underground infrastructure for traffic control, streetlight or public transportation, including without limitation any curb control

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sign, parking meter, vehicular traffic sign or signal, pedestrian traffic sign or signal, barricade reflectors; (2) access to any public transportation vehicles, shelters, street furniture or other improvements at any public transportation stop; (3) worker access to above-ground or underground infrastructure owned or operated by any public or private utility agency; (4) fire hydrant or water valve; (5) access to any doors, gates, sidewalk doors, passage doors, stoops or other ingress and egress points to any building appurtenant to the rights-of-way; or (6) access to any fire escape.

3. Pole Availability and Location

- A. Attachments shall be limited to mast arm streetlights on Caltrans Type-15 Poles.
 - i. Attachments to historic, ornamental, and neighborhood mast arm poles shall not be permitted.
 - ii. Attachments to traffic signal poles shall not be permitted.
 - iii. Attachments shall not be located along the frontage of a historic building, deemed historic on a federal, state, or local level, or in front of public art.
- B. No more small cell devices or facilities may be attached to any non-metered streetlight than is permitted by the City's Billing Agreement for Small Cell Connections to City Streetlights. Only one small cell device or attachment may be attached to any pole or structure except for colocation by the same carrier, or colocations by a neutral host as may be authorized in writing by the Public Works Director.
- C. Poles showing signs of damage or corrosion must be replaced in kind. Poles that were determined to have insufficient structural capacity during the required field verification shall also have replacement footings designed. Pole number labels, if incorrect or missing, shall be corrected.
- D. New mast arm poles (Caltrans Type-15) shall be designed per the current City Standards, to seamlessly fit with the existing lighting system.
 - i. New pole locations within ten (10) feet of existing utility or light poles shall not be permitted.
 - ii. New foundation required when installing new streetlight pole.
 - iii. A plan for a pole shall be submitted for review and approval that shows the existing and proposed streetlight and electrical infrastructure and designed in such a way that a uniform light distribution is provided in the subject area.
 - iv. Once approved and installed, the new streetlight pole and other infrastructure will be the property of the City of Sacramento.
 - v. The ongoing cost to power the new pole once it is installed shall be the responsibility of the applicant.

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- E. In a residential zoning district, the following standards shall apply, unless the applicant can demonstrate with substantial evidence satisfactory to the Public Works Director that such siting limitation will materially inhibit personal wireless service as to a particular small cell wireless communication facility:
 - i. No small cell wireless communications facility shall be located immediately adjacent to a front yard of any residential dwelling.
 - ii. No small cell wireless communications facility shall be placed within five hundred feet of another small cell wireless facility.
 - iii. Facilities shall not be located in front of business or residential windows, primary walkways, primary entrances or exits, or in such a way that it would impede a delivery to the building.
 - iv. Facilities should be located near shared property lines between two adjacent lots as much as possible or along a secondary rear property street frontage.
 - v. Poles in violation of ADA access requirements shall not be permitted.
 - F. Modifications to ornamental streetlight poles for the installation of photocells are the carrier's responsibility. All costs associated with fixing or replacing the damage to the pole or any components of the pole that occur during installation are to be paid by the carrier.
 - G. All electrical circuits that include the decorative streetlight poles on Capitol Mall, from Tower Bridge to 8th Street shall be avoided for photocell modification.
 - H. It is the carrier's responsibility to conduct field verification during the design phase to determine that the pole foundation is adequate for the planned attachments. If the pole foundation is later found to be inadequate based on the dimensions and/or condition of the foundation not matching the plans, field work shall be stopped and the plans redesigned and resubmitted with the proposed foundation details, conduit and conductor layout, anchor bolt pattern confirmation, single line diagram and site plan for City Electrical and Structural Engineering approval.
 - I. In the case where a new pole foundation is required, wherever possible reuse the location for the existing foundation to place the new pull box for the relocated streetlight pole.
4. Equipment, Wiring and Cabling
- A. Equipment on pole shall contain antenna and stacked radio relay units (RRU) only. All other equipment should be low-profile, blended into the surrounding environment, or placed in another location.
 - B. Equipment and enclosures (not including antenna) shall be of low-profile form factor. They shall be mounted as close to the pole as allowed by applicable regulation and manufacturer equipment standards and shall not extend more than 12" from the pole. Enclosures should be consolidated with existing signs

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to minimize visual impact.

- C. Antenna should be mounted in a concealed canister (cantenna) on the top of pole and all equipment should be mounted flush to the pole.
- D. Antenna height shall not exceed 2’.
- E. Antenna width shall not exceed 14.5” in diameter.
- F. Where there are existing banners on streetlights, written permission must be received from the banner owner prior to adjusting banners for small cell installations.
- G. Equipment and cabling below the antenna needs to be shrouded. All equipment on each pole shall be housed in a suitable enclosure to conceal components and cabling from public view. The enclosure shall be coated in material and color matching that of the pole. The permittee shall regularly maintain the enclosure and the equipment.
- H. No exposed meter, meter pan or meter pedestal may be used. Metered panels and sockets shall be mounted at 10’ or higher from grade.
- I. Cabling below radio relay units shall enter the pole with no more than a five-inch gap between bottom of each radio relay unit and the bottom of the corresponding entry hole on the pole. Conduit connection at pole entry points shall utilize the smallest fitting sizes available. Sealing compounds, if utilized, shall be tidy without excess bubbling and painted to match pole.
- J. All cabling, wires, and conduit shall be concealed completely within the pole and applicable shrouds. Cabling and wires shall enter/exit the streetlight pole through conduit sweeps within the streetlight footing. External conduit attachment to the pole is not permitted. Camouflaging and integrating cabling, wires and conduit by using non-reflective materials and colors that blend in with their surroundings may be permitted with the approval of the Public Works Director.
- K. If drilling and cutting into City poles, holes will be structurally welded and reinforced. Seams and bolts/screws at antenna and shroud assembly area shall be fabricated and installed in a manner so as to reduce their visibility (e.g. flush mounting screws) from sidewalk level.
- L. Retain fiber and power inside the pole at the base.
- M. Ensure any legs/handles are removed from RRUs and equipment logos are all removed.
- N. Utilize signage (e.g. road, guide, informational signage), or other appropriate elements, in front of RRUs to reduce visibility for pole locations in areas which define City (e.g. historic districts)
- O. Remove all manufacturer decals and logos. Retain one Radio-Frequency (RF) warning sticker near antenna with smallest size and lowest visibility color allowed.

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5. Radio Frequency

- A. City Street Light and Signage Technicians or representatives shall have access to disconnect radio electrical service for maintenance to streetlights or RF interference to public safety radio systems.
- B. City RF engineer shall receive RF study indicating proposed location, frequency, and EIRP will not interfere with Public Safety Radio Network.
- C. Permittee's obligation to comply with all laws includes all laws related to maximum permissible exposure to RF or EMF emissions on or about the License Area, which includes all applicable FCC standards, whether such RF or EMF emissions or exposure results from permittee's equipment alone or from the cumulative effect of permittee's equipment added to all other sources on or near the License Area.
- D. After the facility has been constructed, the permittee will be required to cover all costs associated with the measuring, recording, reporting and monitoring of emissions, including EMR/RF and noise associated with the wireless communications facility. Such information shall be provided, within 30 days of activation of the equipment, in an RF Compliance Report.
- E. Field testing is required each time a modification (change of equipment or antenna) is proposed that may change the RF emissions, and every time the permit is renewed.
- F. The RF Compliance Report shall be prepared by a certified professional engineer, or other technical expert approved by the City of Sacramento, and shall provide information that demonstrates the facility will not cause any potential exposure to RF emissions that exceed adopted FCC standards for human exposure. Testing shall be conducted in compliance with FCC regulations governing the measurement of RF emissions, and any other testing methods the City may prescribe, and shall be conducted during normal business hours on a non-holiday weekday with the subject equipment measured while operating at maximum power. The RF report must include the actual frequency and power levels (in watts effective radiated power) for all existing and proposed antennas at the site and exhibits that show the location and orientation of all transmitting antennas and the boundaries of areas with RF exposures in excess of the uncontrolled/general population limit (as that term is defined by the FCC) and also the boundaries of areas with RF exposures in excess of the controlled/occupational limit (as that term is defined by the FCC). Each such boundary shall be clearly marked and identified for every transmitting antenna at the project site. For all measurements made, evidence must be submitted showing that the testing instrument(s) used were calibrated within their manufacturer's suggested periodic calibration interval, and that the calibration is by methods traceable to the National Bureau of Standards. At the sole option of the City Engineer, an agent of the City may monitor the performance of testing required for preparation of the RF Compliance Report.

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- G. The permittee shall undertake to inform and perform appropriate tests for residents of dwelling units located within 300 feet of the transmitting antennae at the time of testing for the Activation Report.
 - i. At least 14 calendar days prior to conducting the testing required for preparation of the Activation Report, the Applicant shall notify the Department of Public Works, and shall send a letter, via registered mail through the U.S. Postal Service, to the resident of any dwelling unit within 300 feet of a transmitting antenna, notifying them of the date on which testing will be conducted.
 - ii. Within 30 days of the installation and operation of the facilities, the Applicant shall confirm in writing to the Department of Public Works, through an Activation Report, that the facilities are being maintained and operated in compliance with applicable Building, Electrical and other Code requirements, as well as applicable FCC emissions standards.
- H. All wireless carriers shall provide radio maintenance contact, who can be notified prior to radio power being disconnected.

6. Notifications Prior to Construction

- A. Prior to construction, applicant shall mail out, by certified mail, a notification letter to residents/businesses/schools within a 300-foot radius of the subject streetlight. The notification letter shall contain the following information:
 - i. Clear description of the scope of work
 - ii. Photo simulation
 - iii. Applicant contact information
- B. Residents/businesses/schools must be given 20 calendar days' notice prior to construction beginning.
- C. The following public outreach information shall be provided with permit submittal package:
 - i. Notification letter
 - ii. List of recipients

7. Submittals

- A. Each submittal shall include a noise study. Facilities may generate no more than 45 decibels within three feet of any residential dwelling or City park boundary, and no more than 55 decibels within ten feet of any commercial structures.
- B. Submittals shall be prepared by qualified professionals who are experienced in the City of Sacramento and local standards. At the minimum, submittals shall meet the following criteria:
 - i. Photo simulations are clear, consistent, and realistically portray antennas, equipment, offset bracket systems, and cabling. Submittals based on Google Street Views are not acceptable.

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- ii. Include engineered drawings reflecting topographic/property maps processing ROW, PUE, and property line delineation.
 - iii. Private property access and easements, if require, shall be supported by agreements granting the permittee such access or easements. The agreement shall hold the City harmless of any liabilities.
 - iv. Each submittal shall include a SMUD commitment letter approving the electrical POC, connected equipment specification sheet, location map, electrical load calculation and certification that is stamped and signed by a licensed electrical engineer.
 - v. Underground and overhead utility shall be located and conflicts identified.
 - vi. Bore pits and other work above surface in City ROW shall be repaired or replaced according to City standards.
- C. Telecommunication providers must provide notification to the City's Department of Public Works when planning to onboard a new design professional to prepare fiber or small cell submittals. All design professionals must be onboarded by the Department of Public Works and have a single permit issued before submitting subsequent permits.
- D. A complete submittal package for small cell installation in the right-of-way includes each item listed below and must be its own PDF and must follow the associated naming convention below. Submit the application files electronically to DE@saccity.onmicrosoft.com.
- i. Revocable Permit Application
 - ii. Construction Encroachment Permit Application
 - iii. Radio Frequency Report
 - iv. Structural Analysis prepared by a State of California Licensed Civil Engineer, including a Field Verification of Street Light Footing Dimensions.
 - v. Construction Plans prepared in accordance with the City of Sacramento – Department of Public Works drawings standards. The installation of the small cell equipment on all approved permits must be performed by an electrical contractor holding a current C-10 license, as issued by the California State License Board.
 - vi. Certificate of Liability Insurance for Contractor and Owner of Equipment
 - vii. Contractor's License (C-10) and Contact Information
 - viii. Field Walk Data Collection Form including a physical reading taken from the circuit in question to verify existing capacity.
 - ix. SMUD Services Request for Telecommunications Service Provider (in one PDF) (per pages 14-15 of SMUD Services Agreement) and the equipment OEM specifications.

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- E. A self-certification by the permittee of the maximum AC wattage consumption for all equipment associated with each small cell device connected under the SMUD Service Agreement.
 - F. Upon review and approval of a submitted application, the Encroachments Desk will contact the applicant to confirm the construction schedule, review and approve applicant's traffic control plan, and assign an inspector.
 - G. The notice to proceed with construction activities (permit) will be issued at the pre- construction meeting by the inspector assigned by the City. It is the responsibility of the applicant or its contractor to coordinate the date, time, and location of the pre- construction meeting with the assigned inspector.
8. Standard Conditions and Maintenance Obligations
- A. Site Maintenance. The permittee shall keep the site, which includes without limitation any and all improvements, equipment, structures, access routes, fences and landscape features, in a neat, clean and safe condition in accordance with the approved construction drawings and all conditions in this ROW use permit. The permittee shall keep the site area free from all litter and debris at all times. The permittee, at no cost to the City, shall remove and remediate any graffiti or other vandalism at the site within 48 hours after the permittee receives notice or otherwise becomes aware that such graffiti or other vandalism occurred.
 - B. The permittee shall repair, at its sole cost and expense, any damage including, but not limited to subsidence, cracking, erosion, collapse, weakening, or loss of lateral support to City streets, sidewalks, walks, curbs, gutters, trees, parkways, street lights, traffic signals, improvements of any kind or nature, or utility lines and systems, underground utility line and systems, or sewer systems and sewer lines that result from any activities performed in connection with the installation, maintenance, or operation of a wireless facility in the public right-of-way. The permittee shall restore such areas, structures and systems to the condition in which they existed prior to the damage that necessitated the repairs. In the event the permittee fails to complete such repair within thirty (30) days of being notified of the need for such repairs by the City, the City may revoke the permit pursuant to Sacramento Municipal Code Section [blank].
 - C. Notification after issuance of permit and prior to construction:
 - i. Applicant is required to distribute written notice to residents, businesses, and schools within a 300-foot radius of the project limits a minimum of 3-days prior to start of construction. Notices shall include the project name, describe the nature and duration of the construction operations, and provide a telephone number in which the applicant or the designated representative may be contacted.
 - ii. If construction operations are delayed for any reason beyond the duration stipulated in the notices, or phasing of work includes dormant periods greater than 1-month intervals, the applicant shall re-issue written notices.
 - iii. A copy of the written notices and a map showing the notice distribution area shall be submitted to the Public Works Inspector listed on the first page of

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the permit.

- D. Within thirty (30) days of the anniversary date of the Permit, the permittee shall routinely inspect the personal wireless service facility to ensure that it is maintained in good condition, including without limitation ensuring the facilities are reasonably free of: general dirt and grease; chipped, faded, peeling, and cracked paint; rust and corrosion; cracks, dents, and discoloration; missing discolored, or damaged camouflage; graffiti, bills, stickers, advertisements, litter, and debris; broken and misshapen structural parts; and any damage from any cause. Permittee shall obtain all necessary permits and regulatory approvals prior to performing any maintenance activity on the personal wireless service facility.
- E. Rearrangement and Relocation. Permittee understands and acknowledges that city may require permittee to relocate one or more of its equipment installations. Permittee shall at city's direction, and upon written notice to permittee, relocate such equipment at permittee's sole cost and expense whenever city reasonably determines that the relocation is needed for any of the following purposes: (a) if required for the construction, modification, completion, repair, relocation, or maintenance of a city or other public agency project; (b) because the equipment is interfering with or adversely affecting proper operation of city-owned poles, traffic signals, communications, or other municipal facilities; or (c) to protect or preserve the public health or safety. In any such case, city shall use reasonable efforts to afford permittee a reasonably equivalent alternate location. If permittee shall fail to relocate any equipment as requested by the city in accordance with the foregoing provision, city shall be entitled to remove or relocate the equipment at permittee's sole cost and expense, without further notice to permittee. Permittee shall pay to the city actual costs and expenses incurred by the city in performing any removal work and any storage of permittee's property after removal within thirty (30) days of the date of a written demand for this payment from the city. To the extent the city has actual knowledge thereof, the city will attempt promptly to inform permittee of the displacement or removal of any pole on which any equipment is located. If the municipal facility is damaged or downed for any reason, and as a result is not able to safely hold the equipment, the city will have no obligation to repair or replace such municipal facility for the use of permittee's equipment.
- F. Relocations at Permittee's Request. In the event Permittee desires to relocate any Equipment from one Municipal Facility to another, Permittee shall so advise City. City will use reasonable efforts to accommodate Permittee by making another reasonably equivalent Municipal Facility available for use in accordance with and subject to the terms and conditions of this Agreement. City may require Permittee to submit an application and/or enter into a new Supplement for the prospective relocation site. Permittee shall be liable for all costs of relocation, including any costs which City may incur.