



Architectural Review Board

Staff Report (ID # 10104)

Report Type: Action Items **Meeting Date:** 3/21/2019

Summary Title: Wireless Administrative Standards

Title: ARB Review and Recommendation of Draft Objective Aesthetic, Noise, and Related Standards for Wireless Communications Facilities in the Public Rights of Way. For more information, contact Rebecca.Atkinson@CityofPaloAlto.org.

From: Jonathan Lait

Recommendation

Staff recommends the Architectural Review Board (ARB) review and provide a recommendation to City Council on objective, aesthetic standards for Wireless Communication Facilities on streetlights (Attachment A) and wood utility poles (Attachment B) in the public rights-of-way.

Report Summary

The purpose of this meeting is to provide the ARB and the public an opportunity to review and provide comments and for the ARB to provide a recommendation on draft objective standards for aesthetics, noise, and related issues for Wireless Communications Facilities (WCF) in the public rights of way. The standards would be used instead of the Architectural Review findings and WCF development standards for review and approval of WCFs in the public rights of way.

Background

Over the past two years, the City of Palo Alto has received a large and increasing number of applications for “small cell” Wireless Communication Facilities (WCFs) in the public rights-of-way (PROW). Staff expects the high volume of PROW applications to continue or even increase as wireless carriers seek to improve capacity of existing networks and begin to roll out new 5G technologies. In particular, staff understands that equipment for 5G technologies will have lower power and shorter range, therefore requiring greater density of WCFs to support a network.

The City’s discretion in reviewing WCF applications is significantly limited by state and federal laws, including the federal Telecommunications Act of 1996 and California Government Code

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sections 65850.6 and 65964.1. Federal law prohibits the City from discriminating among wireless services providers and from regulating certain issues such as electromagnetic radiation and other technical requirements of wireless services. In addition, under federal law, the City may not regulate WCF applications in a manner that would “prohibit or have the effect of prohibiting” an entity from providing telecommunications service or personal wireless services. Under state law, if the City fails to act within the timeframes established by the FCC, an applicant may assert that the application is deemed approved as proposed.

On September 26, 2018, the Federal Communications Commission (FCC) adopted a declaratory order and ruling (the “FCC Order”) interpreting the Telecommunications Act and issuing additional regulations governing local review of WCF applications. There are two aspects of the FCC Order that are particularly pertinent to this discussion: First, the FCC defined a new subset of WCFs that it called “small wireless facilities,” upon which the City must act within 60 days. Previously, the City had either a 90- or 150-day “shot clock” to process these applications, depending on the nature of the application. Second, the FCC determined that local aesthetic regulations are preempted unless they are reasonable, non-discriminatory, and published in advance. The FCC order gives local governments until April 15, 2019 to adopt such regulations.

The FCC 2018 Order has been challenged by several coalitions of municipalities and that litigation is pending in the Ninth Circuit Court of Appeals. In January 2019, the courts denied a request by the municipalities to “stay” the FCC Order until the litigation was resolved. The FCC Order therefore went into effect on January 14, 2019. On the same day, Representative Anna Eshoo introduced a bill, H.R. 530, which would repeal the FCC’s September 2018 order. The bill has been referred to the House Committee on Energy and Commerce. On February 7, 2019, the City of Palo Alto sent a letter of support for H.R. 530 (Attachment C).

Although the City’s effort to draft these standards is driven largely by need to comply with the FCC Order, the adoption of objective standards also represents an opportunity for the City. First, the standards allow the City to proactively define the types of WCF installations it deems appropriate in the PROW, rather than simply reacting to designs proposed by an applicant. Standards would also promote greater uniformity of WCF designs throughout the City. While carriers could still apply for alternative designs, approvals would be limited to unusual circumstances where an alternative design would result in greater camouflage (e.g. existing street furniture) or where strict application of the City’s standards would violate federal law. Second, adoption of objective standards would allow for more efficient review and help to alleviate the significant burden on staff resources and ARB agendas created by the influx of WCF applications. In the past, the City has struggled to schedule an ARB hearing and potential City Council appeal within a 150-day shot clock. Even in the absence of the new 60-day shot clock for “small wireless facilities,” the City would likely need to explore ways to streamline its review.

Discussion

The proposed standards (Attachments A and B) represent staff's effort to prepare a set of reasonable and objective aesthetic regulations that do not prohibit the provision of wireless services and that are capable of being applied within a 60-day timeframe. Each set of standards defines a number of different possible wireless communication facility designs that staff believes are among the smallest, least conspicuous, camouflaged, and/or stealth options available. Staff has compiled a number of photos, renderings, and visual simulations (Attachment D) in order to help illustrate the basic wireless communication facility designs for streetlight poles and wood utility poles. The standards would be used instead of the Architectural Review findings and WCF development standards for review and approval of Wireless Communication Facilities in the public rights of way. Relevant Comprehensive Plan goals and policies (Attachment E) are provided for easy reference.

Staff seeks public and ARB feedback on designs for streetlight poles and wood utility poles to inform the development of objective standards. Specifically, staff seeks the ARB's recommendation on whether each proposed design is appropriate for Palo Alto's PROW, whether a design may be appropriate only in some neighborhoods or locations, or whether a design would not be appropriate in any context. In addition, staff seeks public and ARB feedback on pole siting criteria, including whether the standards should specify minimum distance between poles with WCF equipment.

Staff welcomes the submittal of additional designs that members of the public, the ARB, wireless carriers, and others would like to send for consideration.

Streetlight Pole Standards

Design name	Brief Description	Notes
Underground design	Radio and ancillary equipment are placed in an underground vault, where space permits. Antennae are mounted within a shroud at the top of a nearby pole. Conduit and cabling is inside the pole.	<ul style="list-style-type: none"> All vault designs reviewed by staff require significant excavation and occupy underground space that the City may wish to use for utility purposes in the future. Vaults are unlikely to comply with noise policies in residential neighborhoods.
Integrated pole design	Radio and ancillary equipment are internal to a streetlight pole with a wider diameter than the City's existing streetlight standards. Antennae may also be internal or mounted at the top of the	<ul style="list-style-type: none"> Poles may be designed to have a uniform wide diameter or to transition to a narrower pole above approximately seven feet. Replacement streetlights designed to house today's technologies may be oversized compared to equipment designed in the future. Current integrated pole designs do not accommodate 5G equipment.

	pole. Conduit and cabling is inside the pole.	<ul style="list-style-type: none"> Unless streetlights are replaced en masse, use of integrated poles might result in an inconsistent streetscape.
Top-mounted design	All antenna, radio, and other ancillary equipment are housed in a single shroud mounted at the top of the pole. Conduit and cabling is inside the pole.	<ul style="list-style-type: none"> The top-mounted design preserves the existing streetlight standards, but results in taller overall installations. The ARB recently reviewed this design in a preliminary review (17PLN-00398).

Additional Design Options for Streetlight Poles

The following designs are not included in the draft standards, but have been suggested by carriers for the City's consideration.

Pedestal	Radio and ancillary equipment are placed in a pedestal underneath a streetlight pole. Similar to some integrated pole designs, but with a wider, squatter base. Antennae are mounted at the top of the pole. Conduit and cabling is inside the pole.	<ul style="list-style-type: none"> Occupies more sidewalk area than existing streetlight base and integrated pole designs. Fewer overall locations required to support a wireless network due to accommodating larger, higher power radios. Designs have been refined since last reviewed by the ARB in December 2018.
Minimal sunshield	Radio and other ancillary equipment are housed in small sun-shade boxes mounted directly on the pole. Antennae are mounted at the top of the pole. Conduit and cabling is inside the pole.	<ul style="list-style-type: none"> The smallest overall volume, but equipment is more visible.
Existing street signs	Radio and other ancillary equipment are placed entirely behind existing street signs, between the sign and pole. Antennae are mounted at the top of the pole. Conduit and cabling is inside the pole.	<ul style="list-style-type: none"> Similar overall volume to minimal side-mount. Two sided signs can be used to screen equipment, but one sided signs only screen from one direction.

Existing street furniture	Antenna, radio and ancillary equipment are housed within the envelope of existing street furniture (e.g. radios located under the seat of a street bench and antennas are mounted on a nearby pole; radios and antenna incorporated into a bus shelter). Conduit and cabling is routed underground and/or inside the street furniture.	<ul style="list-style-type: none"> There are limited locations in which this design could be deployed. Staff has not seen this design in fully realized plans.
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Wood Utility Pole Standards

Design name	Brief Description	Notes
Underground design	Radio and ancillary equipment are placed in an underground vault, where space permits. Antennae are mounted within a shroud on a nearby pole. Conduit is attached flush to the pole.	<ul style="list-style-type: none"> All vault designs reviewed by staff require significant excavation and occupy underground space that the City may wish to use for utility purposes in the future. Vaults are unlikely to comply with noise policies in residential neighborhoods.
Top-mounted design	All antenna, radio, and other ancillary equipment are housed in a single shroud at the top of a wooden bayonet extension or at the top of a replacement pole. Conduit is attached flush to the pole.	<ul style="list-style-type: none"> This design requires approximately twice as many total nodes compared to the side-mount option. On poles with power lines, total additional height is approximately 12 ft. Staff has yet to confirm structural and technical feasibility; this design will likely require pole replacement. Pole replacement results in greater short term impacts.
Side-mounted design	Radio and other ancillary equipment are housed in a shroud mounted to the side of the pole. Antenna mounted on a bayonet at the top of the pole.	<ul style="list-style-type: none"> Shroud dimensions continue to shrink as technology develops. Proposed dimensions are smaller than some designs previously reviewed by the ARB. Example dimensions include: <ul style="list-style-type: none"> 40" height, 15" width, 12" depth

	Conduit is attached flush to the pole.	<ul style="list-style-type: none"> ○ 50" height, 13" width, 7" depth
Minimal sunshield design	Radio and other ancillary equipment are housed in small sun-shade boxes mounted directly on the pole. Antennae mounted on a bayonet at the top of the pole. Conduit is attached flush to the pole.	<ul style="list-style-type: none"> • The smallest overall volume, but equipment is more visible. • This design requires approximately twice as many total nodes compared to the side-mount option.
Strand-mount design	Antenna, radio and other ancillary equipment are clamped to the steel cable strand that runs between poles that supports other telephone and cable company cables. The design would use one or two shrouds. Cabling and conduit would be closely attached the cable strand.	<ul style="list-style-type: none"> • Equipment would be shrouded and would not occupy space on the pole.

5G Equipment

The standard designs described above have been developed for 4G equipment, but some may not be feasible in combination with newer 5G technology. Staff understands that 5G equipment has been designed to integrate radios and antennae into a unit or units that are smaller than most 4G equipment. However, due to the nature of 5G technology, signals do not travel very far and are easily blocked by intervening material. Thus 5G networks will likely require a greater number of WCF nodes. In addition, several carriers have asserted that 5G equipment cannot be shrouded with the same materials typically used to shroud 4G equipment. The draft standards for both streetlight poles and wood utility poles attempt to accommodate the technical limitations of 5G equipment by allowing equipment that cannot be shrouded in one of the standard designs to occupy up to an additional 2.5 cubic feet on the pole. This is consistent with the recent preliminary architectural review application submitted by AT&T, which is the first application the City has received portraying both 4G and 5G equipment.

Standards Prepared by Other Cities

While Palo Alto is unusual in that it owns or jointly owns many of the utility structures, examples from other cities are instructive. Other cities have already or are in the process of creating standards. While not provided for their content, the standards from the City of Huntington Beach (Attachment F) are provided to simply illustrate the possibility of developing a short concise set of illustrated administrative standards. Otherwise, the following weblinks are provided to show recent examples of how other cities are approaching standard designs:

- **City of Pasadena:** January 14, 2019: First Reading of Proposed Amendments to Telecommunications Facilities Ordinance:
(http://ww2.cityofpasadena.net/councilagendas/2019%20Agendas/Jan_14_19/AR%2013.pdf)
- **City and County of Denver:** April 2018: Small Cell Infrastructure Design Guidelines
(https://www.denvergov.org/content/dam/denvergov/Portals/705/documents/guidelines/PWES-016.0-Small_Cell_Infrastructure_Design_Guidelines.pdf)

Resource Impact

Staff anticipates that the adoption of objective aesthetic standards will reduce the amount of staff resources expended per wireless application. With known, objective standards designed to address multiple on-site conditions and with active involvement from carriers as to feasibility, applicants are more likely to submit compliant projects at the outset. Staff anticipates less iterative project modifications as a result of the adoption of such standards, which means less staff time reviewing multiple plans submittals.

Policy Implications

As discussed above, the City is required to adopt reasonable and objective aesthetic standards under the FCC's September 2018 Order. Following the ARB's recommendation, staff will present these standards to the City Council along with an ordinance updating the City's wireless code. On December 12, 2018, the Planning and Transportation Commission (PTC) reviewed a draft ordinance. The PTC staff report is viewable here: <https://www.cityofpaloalto.org/civicax/filebank/documents/68093> and meeting minutes are viewable here: <https://www.cityofpaloalto.org/civicax/filebank/documents/68690/>. The PTC voted 4-1 to approve staff's recommendation with additional direction.

A draft ordinance with further revisions will return to the PTC on March 27, 2019. Following the PTC's review, the City Council is tentatively scheduled to review the draft ordinance and adopt the ordinance on April 15, 2019. If so directed by the City Council, these standards may be repealed in the event the FCC Order is overturned by a court or by federal legislation. Furthermore, it is anticipated that the standards would be revised from time to time in order to remain current with the evolving designs.

Environmental Review

These objective aesthetic standards involve the construction of small wireless facilities, which are generally exempt from environmental review under CEQA Guidelines Section 15303. The adoption of objective aesthetic standards and the associated ordinance revising the City's wireless code represent minor alterations in land use limitation, which are exempt from environmental review under CEQA Guidelines Section 15305.

Report Author & Contact Information

ARB¹ Liaison & Contact Information

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Attachments:

- Attachment A Draft Administrative Standards Streetlight Poles (DOCX)
- Attachment B Draft Administrative Standards Wood Utility Poles (DOCX)
- Attachment C Mayor's Letter in Support of HR 530 (PDF)
- Attachment D Examples of Design Options for Reference (PPTX)
- Attachment E Example Comprehensive Plan Goals and Policies (DOCX)
- Attachment F Huntington Beach Standards for Small Cell Installation Projects 2018 (PDF)

ATTACHMENT A
DRAFT ADMINISTRATIVE STANDARDS STREETLIGHT POLES (MARCH 13, 2019)

Streetlight Poles

Standard designs for WCFs located on Streetlights

- a) **Underground design:** Radio and other equipment may be placed in an underground vault where space permits. The antennae may be placed in a shroud at the top of a nearby pole.
 - i) Underground vaults shall be the minimum volume necessary to house WCF equipment. Application materials should explain why the proposed dimensions are required. In no event shall vault dimensions exceed 5 feet 8-inches x 8 feet 2-inches x 5 feet 7-inches or 260 cu. ft., excluding space required for ventilation or sump pump equipment.
- b) **Integrated pole design:** Radio and other equipment may be enclosed within the body of the pole. The antennae may be enclosed within the body of the pole or placed in a shroud at the top of the pole.
 - i) Poles shall match style and dimensions of PWD standards or existing pole as closely as possible and shall not exceed 18" in pole diameter at their widest, excluding decorative elements.
- c) **Top-mounted design:** All equipment may be enclosed within a shroud at the top of the pole, including the antenna, radio, and other equipment.
 - i) Top-mounted equipment shrouds shall not exceed 5.5 feet from the top of the streetlight pole and shall taper to meet the pole above the mast arm. The diameter of the antenna and shroud shall not exceed 15" at their widest.

General standards for all WCFs located on Streetlights

WCF equipment and shrouds

- 1) Antennae shall be the smallest antennae possible to achieve the coverage objective. Except as provided for top-mounted designs, antennae shall not exceed 3 feet from the top of the streetlight pole and the associated "antenna skirt" shall taper to meet the pole above the mast arm. The diameter of the antenna and shroud shall not exceed 15" at their widest.
- 2) All shrouds and equipment shall be painted to match PWD standards or the existing pole, as applicable.
- 3) All shrouds and equipment shall be designed without gaps between materials or sky visible between component surfaces.
- 4) Venting grates or louvers shall be minimized to the greatest extent possible.
- 5) Equipment that cannot propagate an adequate signal within the shrouding required by the standard designs may be attached to a streetlight pole as close as possible to other equipment at the top of the pole, but in no event below a height of 2 feet beneath the light mast or higher. Each instance of such equipment shall not exceed 0.85 cu. ft. nor shall the total volume of such equipment exceed 2.6 cu. ft. per streetlight pole.

Height

- 6) Except as provided for top-mounted designs, poles and all attachments will not exceed the height of surrounding poles by more than 3 feet.
- 7) Replacement poles will conform to Public Works Department (PWD) style guidelines where the City has adopted standards and will match the pole being replaced where no standards exist. For integrated pole designs, poles shall incorporate decorative elements (e.g. fluting, decorative mast arm and luminaire, etc.) from PWD standards or existing poles, as applicable.

Landscaping

ATTACHMENT A
DRAFT ADMINISTRATIVE STANDARDS STREETLIGHT POLES (MARCH 13, 2019)

- 8) At the direction of the Urban Forestry division, Applicant shall provide street trees and/or smaller amenity trees that interrupt direct views of WCF equipment where Urban Forestry determines appropriate space exists within 35 feet of the pole.

- 9) Any existing landscaping removed or damaged by installation shall be replaced in kind.

Noise

- 10) Noise shall comply with PAMC Chapter 9.10 and shall be consistent with noise-related Comprehensive Plan goals and policies.
 - a) In residential areas with an average 24-hour noise level (L_{dn}) at or below 60 decibels (dB), noise generated by WCF equipment shall not cause the L_{dn} exceed 60dB or to increase by 5.0 dB or more, even if the resulting L_{dn} would remain below 60 dB.
 - b) In residential areas with an L_{dn} above 60 dB, noise generated by WCF equipment shall not cause the average to increase by 3.0 decibels (dB) or more.

Curb clearances

- 11) If placed below 16' above ground level:
 - a) Attachments shall be placed no closer than 18" to the curb and at least 3' from a curb cut or a corner radius (Caltrans Highway Design Manual Section 309).
 - b) Attachments shall not extend over the sidewalk.
 - c) Attachments shall be at least 10' above ground level.

Miscellaneous

- 12) WCF installations shall not require any changes in the City's existing banner marketing program.
- 13) Safety signage shall be the smallest size possible to accomplish its purpose.
- 14) Power disconnects shall be placed in a vault near the base of the pole.
- 15) Except as provided in these standards, no equipment cabinets may be placed at grade.
- 16) Light mast orientation, height, color temperature and other photometric information shall comply with PWD standards.
- 17) Fiber and power connections and trenching shall be minimized and shall provide the required clearances from underground utilities, as defined by CPAU.
- 18) Vaults in sidewalks shall not be placed in a manner that obstructs building emergency access or egress during maintenance events.

Pole location

- 19) Nodes shall utilize existing streetlight pole locations. Any new pole locations are prohibited unless approved through PWD/CPAU pole placement application.
- 20) Streetlight nodes at a designated gateway location or along a scenic corridor shall not utilize a top-mounted design.
- 21) Streetlight nodes shall not interfere with and shall provide the required clearance from underground structures, such as basements and existing utility vaults.

ATTACHMENT B
DRAFT ADMINISTRATIVE STANDARDS WOOD UTILITY POLES (MARCH 13, 2019)

Wood Utility Poles

Standard designs for WCFs located on Wood Utility Poles

- a) **Underground design:** Radio equipment may be placed in an underground vault where space permits. The antennae may be placed in a shroud at the top of a nearby pole.
 - i) Underground vaults shall be the minimum volume necessary to house WCF equipment. Application materials should explain why the proposed dimensions are required. In no event shall vault dimensions exceed 5 feet 8-inches x 8 feet 2-inches x 5 feet 7-inches or 260 cu. ft., excluding space required for ventilation or sump pump equipment.
- b) **Top-mounted design:** All equipment may be enclosed within a shroud at the top of the pole, including the antenna, radio, and other equipment.
 - i) Top-mounted equipment shrouds shall not exceed 5.5 feet from the top of the pole or top of the bayonet attachment, if one is used, and shall taper to meet the top of the pole. The diameter of the antenna and shroud shall not exceed 15" at their widest.
- c) **Side-mounted design:** Radio and other equipment may be mounted on the side of a pole under the following conditions
 - i) All equipment, except electric service connections, shall be contained within a continuous shroud of the smallest volume possible without exceeding the following dimensions: 40" height x 15" width x 12" depth or 50" height x 13" width x 7" depth. Venting grates or louvers, if necessary, shall be minimized to the greatest extent possible.
 - ii) Mounting brackets shall not exceed the width of the shroud, nor exceed the height of the shroud by more than six inches. Mounting brackets shall not extend beyond the minimum required standoff distance of 4 inches.
 - iii) Side mounted equipment shall be oriented to face either of the directions as the flow of traffic on the adjacent street.
- d) **Minimal sunshield design:** Radio and other equipment may be enclosed within one or two sunshields not exceeding 8 inches wide nor 0.75 cubic feet in volume each, mounted directly to the side of the pole. The antennae shall be placed in a shroud at the top of the pole.
- e) **Strand-mount design:** All equipment, including antennae, may be housed within a single shroud attached to a steel cable strand running between two wood utility poles.
 - i) Shrouds shall not exceed the following dimensions 40" length x 15" width x 12" depth
 - ii) Antennae may be placed in a separate strand-mounted shroud, so long as total volume of all strand-mounted equipment does not exceed 5.0 cu. ft.
 - iii) Cabling and conduit would be attached tightly to the cable strand, instead of hanging loosely or in loops.

General standards for all WCFs located on Wood Utility Poles

WCF equipment and shrouds

- 1) Antennae shall be the smallest antennae possible to achieve the coverage objective. Antennae shall not exceed 5.5 feet from the top of the pole or bayonet attachment, if one is used. The diameter of the antenna and shroud shall not exceed 15" at their widest.
- 2) Bayonet attachments and equipment or antennae at the top of the shroud shall be covered by a single tapered integrated shroud and "antenna skirt" that shall meet the pole without any gaps.
- 3) All conduit shall be attached flush to the pole.
- 4) All shrouds and equipment shall be painted to match PWD standards or the existing pole, as

ATTACHMENT B
DRAFT ADMINISTRATIVE STANDARDS WOOD UTILITY POLES (MARCH 13, 2019)

applicable. Paint shall be maintained regularly and shrouds shall be repainted if necessary to match changes in pole color over time.

- 5) All shrouds and equipment shall be designed without gaps between materials or sky visible between component surfaces.
- 6) Equipment that cannot propagate an adequate signal within the shrouding required by the standard designs may be strand-mounted or, if permitted under by GO95, attached to a cross arm or brace protruding no further than 2.5 feet from the pole. Each instance of such equipment shall not exceed 0.85 cu. ft. nor shall the total volume of such equipment exceed 2.6 cu. ft. per wood utility pole.

Height

- 7) For wood utility poles carrying power lines, replacement poles and pole-top bayonet attachments shall be the minimum height necessary to provide GO-95 mandated clearance between WCF equipment and power lines.
- 8) For wood utility poles without power lines, any pole top equipment shall not increase the height of the pole by more than six feet.
- 9) In no event shall the total height of a pole or replacement pole, including all equipment exceed 55 feet.
- 10) Replacement poles will conform to all standards adopted by CPAU.

Landscaping

- 11) At the direction of the Urban Forestry division, Applicant shall provide street trees and/or smaller amenity trees that interrupt direct views of WCF equipment where Urban Forestry determines appropriate space exists within 35 feet of the pole.
- 12) Any existing landscaping removed or damaged by installation shall be replaced in kind.

13)

Noise

- 14) Noise shall comply with PAMC Chapter 9.10 and shall be consistent with noise-related Comprehensive Plan goals and policies.
 - a) In residential areas with an average 24-hour noise level (L_{dn}) at or below 60 decibels (dB), noise generated by WCF equipment shall not cause the L_{dn} exceed 60dB or to increase by 5.0 dB or more, even if the resulting L_{dn} would remain below 60 dB.
 - b) In residential areas with an L_{dn} above 60 dB, noise generated by WCF equipment shall not cause the average to increase by 3.0 decibels (dB) or more.

Curb clearances

- 15) If placed below 16' above ground level:
 - a) Attachments shall be placed no closer than 18" to the curb and at least 3' from a curb cut or a corner radius (Caltrans Highway Design Manual Section 309).
 - b) Attachments shall not extend over the sidewalk.
 - c) Attachments shall be at least 10' above ground level.

Miscellaneous

- 16) Attachments shall not face private property.
- 17) Attachments shall provide the required climbing space.
 - 18) All attachments for equipment shall be in the 12, 3, 6, or 9 o'clock positions.
- 19) Safety signage shall be the smallest size possible to accomplish its purpose.
- 20) Power disconnects shall be placed on the wood pole.
- 21) Except as provided in these standards, no equipment cabinets may be placed at grade.
- 22) If applicable, light mast orientation, height, color temperature and other photometric information shall comply with PWD standards.

ATTACHMENT B
DRAFT ADMINISTRATIVE STANDARDS WOOD UTILITY POLES (MARCH 13, 2019)

- 23) Fiber and power connections and trenching shall be minimized and shall provide the required clearances from underground utilities, as defined by CPAU.
- 24) Vaults in sidewalks shall not be placed in a manner that obstructs building emergency access or egress during maintenance events.

Pole location

- 25) Nodes shall utilize existing wood utility pole locations. Any new pole locations are prohibited unless approved through PWD/CPAU pole placement application.
- 26) Wood utility poles at a designated gateway location or along a scenic corridor shall utilize an underground design.
- 27) Wood utility pole nodes shall not interfere with and shall provide the required clearance from underground structures, such as basements and existing utility vaults.

City of Palo Alto

Office of the Mayor and City Council

Via hand delivery and email: asad.ramzanali@mail.house.gov; joshua_esquivel@feinstein.senate.gov; clint_odom@harris.senate.gov; scott.ammon@mail.house.gov; Anant_Raut@judiciary-dem.senate.gov

February 7, 2019

Honorable Anna G. Eshoo
202 Cannon House Office Building
Washington, DC 20515

Re: Support for H.R. 530 - the Accelerating Wireless Broadband Development by Empowering Local Communities Act of 2019

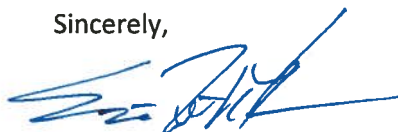
Dear Congresswoman Eshoo:

On behalf of the City of Palo Alto, I write in support of your H.R. 530, which would overturn last year's FCC decision to limit local government review of small cell wireless infrastructure on poles and facilities in our jurisdictions. We agree that deployment of the infrastructure supporting new cellular technology must be completed in a thoughtful and deliberate manner. We also believe that it should be done through the usual public process associated with local government, a process that has worked well and needed no modifications from the FCC.

Like other cities, Palo Alto has a formal process for vetting wireless facilities. We maintain a transparent application and approval process, one that informs our community through [our website](#) and open meetings. The fees we charge are nominal and directly related to the cost of service. Telecommunication companies have successfully utilized our process in the past and currently, as we have placed their small cell infrastructure on city poles per their request.

As you noted, the FCC's decision to implement a time limit on our ability to review these applications – thus limiting our public process – cap fees, and restrict our ability to best determine the needs for our own city represents the FCC's failure to listen to local governments across the country. As such, we support your effort to return these local decisions to local governments. Thank you for your action; we look forward to continuing our support as H.R. 530 moves forward.

Sincerely,



Eric Filseth
Mayor, City of Palo Alto

Cc: The Honorable Dianne Feinstein
The Honorable Kamala Harris
Palo Alto City Council
Ed Shikada, Palo Alto City Manager

P.O. Box 10250
Palo Alto, CA 94303
650.329.2477
650.328.3631 fax

Attachment D

Examples of Design Options for Reference

Table of Contents:

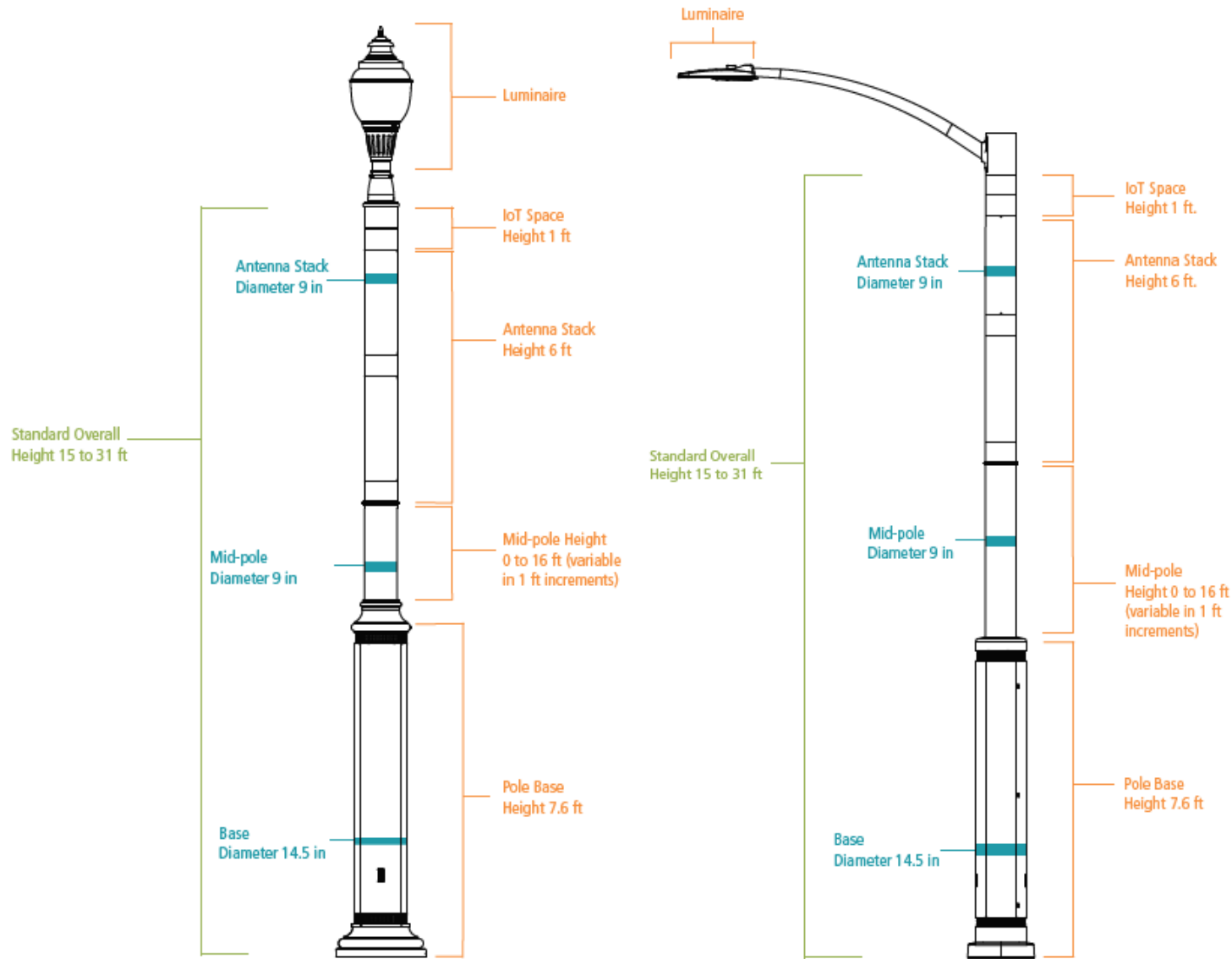
- Streetlight Pole Underground Design Comments
- Streetlight Pole Integrated Pole Design Comments 1
- Streetlight Pole Integrated Pole Design Comments 2
- Streetlight Pole Top-Mounted Design Comments
- Streetlight Pole Pedestal Design Comments
- Streetlight Pole Minimal Side Mount Design Comments
- Streetlight Pole Street Signs Design Comments
- Street Furniture Design Comments
- Wood Utility Pole Underground Design Comments
- Wood Utility Pole Side-Mounted Design Comments
- Wood Utility Pole Top-Mounted Design Comments
- Wood Utility Pole Strand-Mount Design Comments
- Streetlight Pole Design Comments – Previous Review
- Wood Utility Pole Design Comments – Previous Review 1
- Wood Utility Pole Design Comments – Previous Review 2
- Wood Utility Pole Design Comments – Previous Review 3

Streetlight Pole Underground Design Comments: Note radio and other ancillary equipment are placed in an underground vault ; in this case in a vault is visible behind the stop sign, surrounded by a decorative wall design. It will be difficult to find similar space in Palo Alto's rights of way. This example does not show antennas mounted within a shroud at the top of a nearby pole, but instead shows side-mounted antennas.



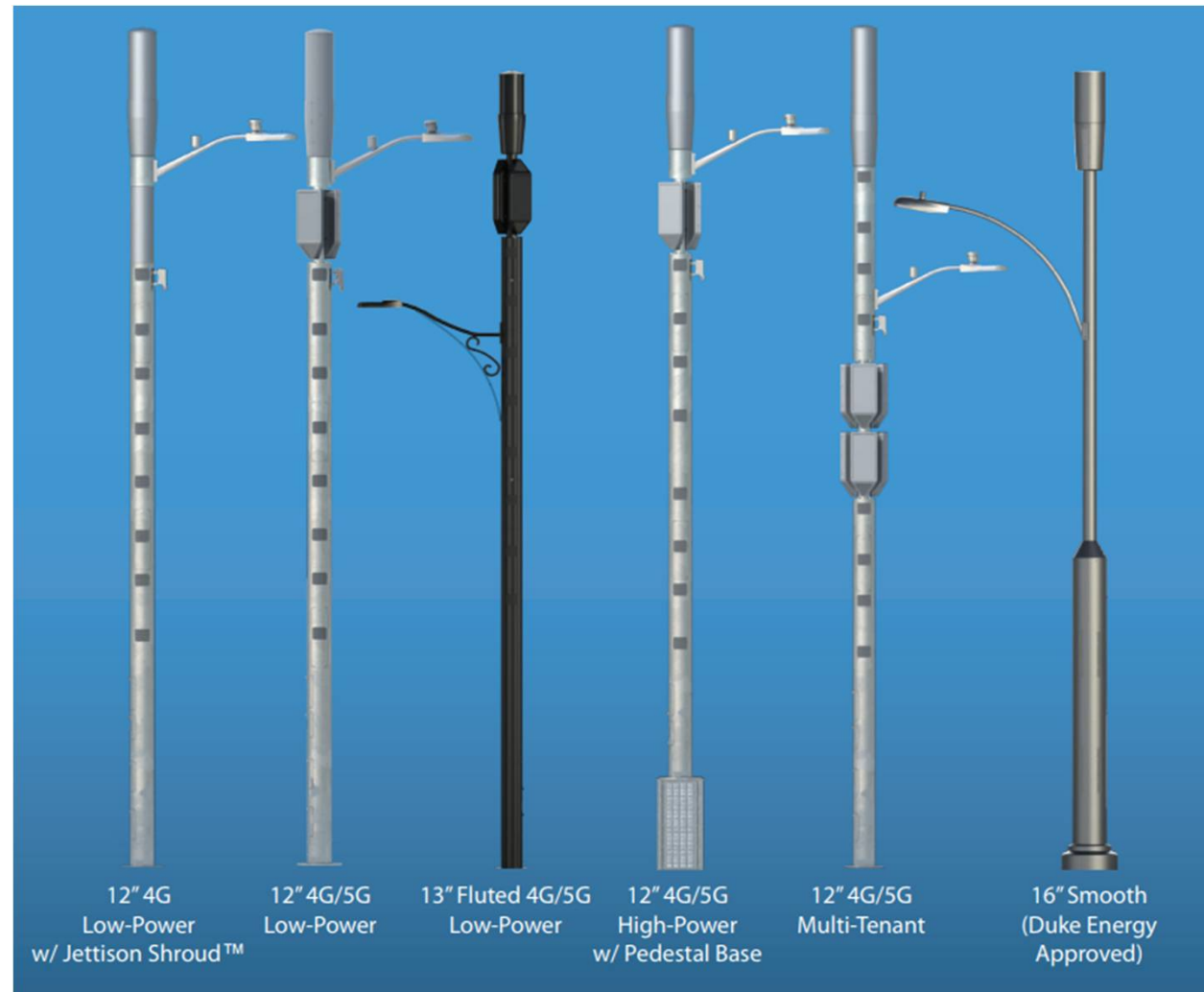
Source: Google Street View 2019
(Highridge Road in Rancho Palos Verdes)

Streetlight Pole Integrated Pole Design Comments: Note that there are options for both roadway and pedestrian streetlight poles, poles come in decorative styles, and it is possible they could be adapted to match the City's guidelines. Removable panels provide access to equipment inside the pole. Radio and other ancillary equipment are internal to a streetlight pole with a wider diameter than the City's existing streetlight standards and conduit and cabling are inside the pole. This example shows antennas inside the pole as well.



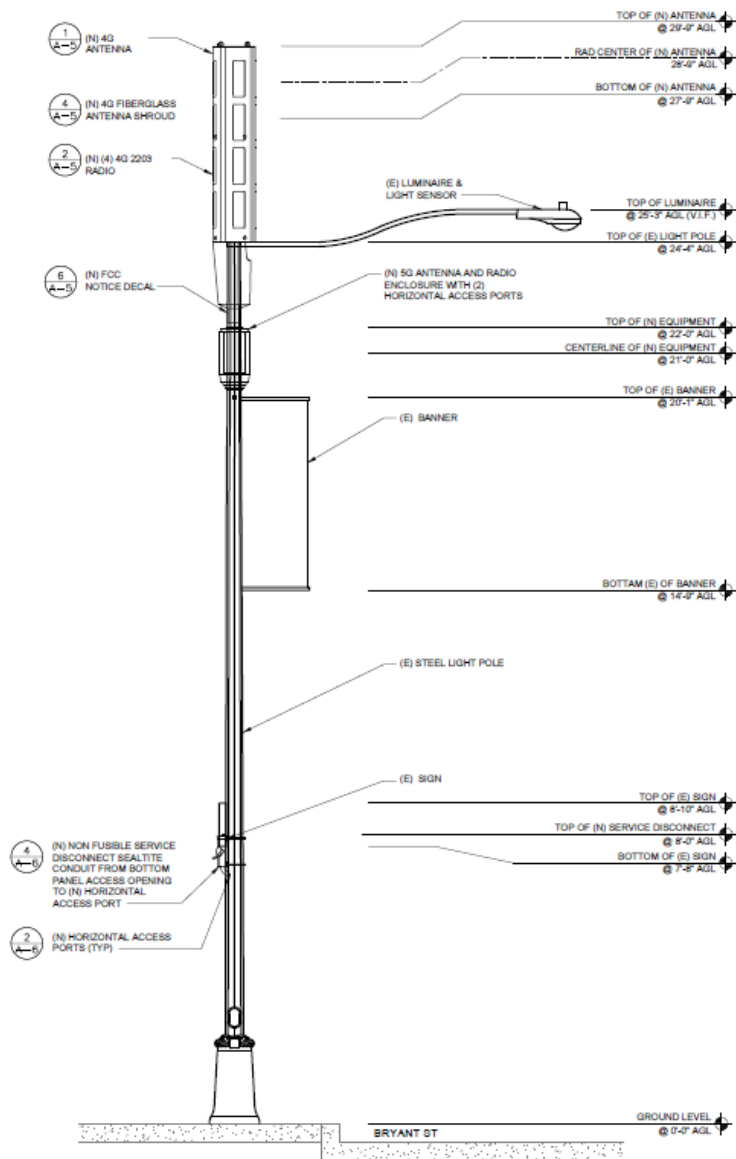
Source: Smart Fusion Pole

Streetlight Pole Integrated Pole Design Comments: Note that there are options for both roadway and pedestrian streetlight poles, poles come in decorative styles and it is possible they could be adapted to match the City's guidelines. Removable panels provide access to equipment inside the pole. Radio and other ancillary equipment are internal to a streetlight pole with a wider diameter than the City's existing streetlight standards and conduit and cabling are inside the pole. Designs are emerging that accommodate both 4G and 5G technologies (4G equipment is housed inside the pole or in a wider base, while 5G equipment is attached to the exterior of the pole).



Source: ConcealFab Product Catalog 2018 and 2019

Streetlight Pole Top-Mounted Design Comments: Note all antenna, radio, and other ancillary equipment are housed in a single shroud mounted at the top of the pole, conduit and cabling are inside the pole, and the pole matches PW style guidelines.

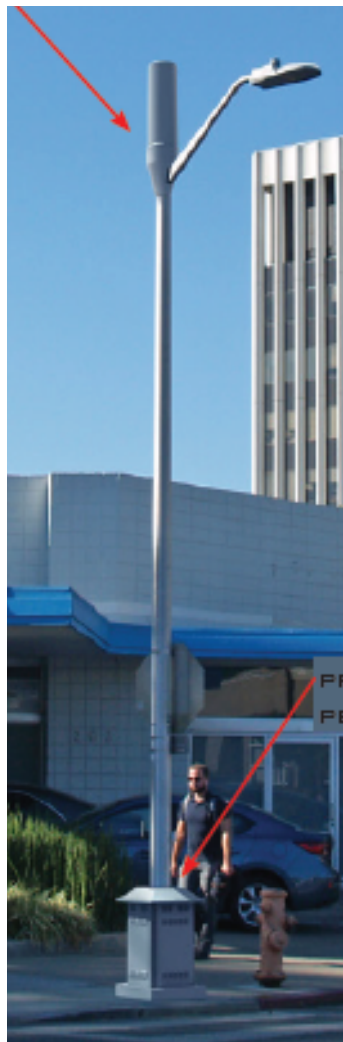


Source: AT&T Preliminary Architectural Review Draft Project Plans

Streetlight Pole Pedestal Design Comments: Note the pedestal wrap around the base of the streetlight pole in the first two examples below. This was not preferred by the ARB or Utilities. However, the third example is the pedestal design proposed for consideration. Radio and other ancillary equipment are placed in a pedestal underneath the base of the streetlight pole and cabling and conduit are inside the pole.



Source: Crown Castle Cluster 2 Visual Simulations (2018)

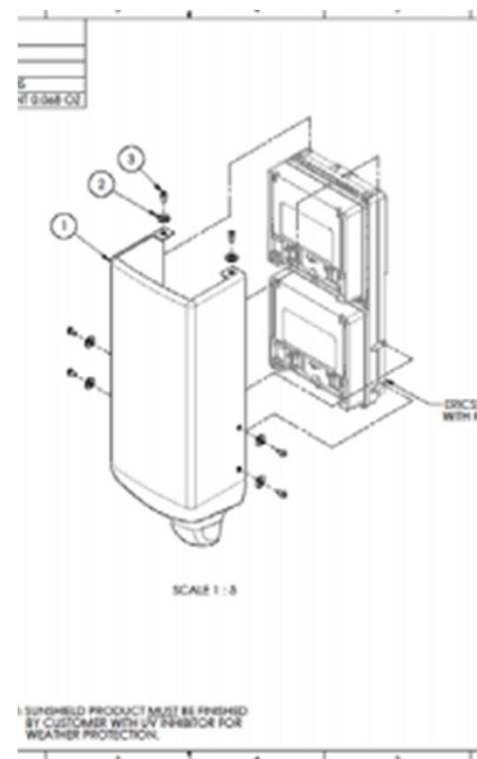


Source: AT&T Preliminary Architectural Review Draft Visual Simulations (2017)



Source: Verizon Site Photo of Node in Cupertino

Streetlight Pole Minimal Side Mount Design Comments: Note radio and other ancillary equipment are housed in small sun-shade boxes mounted directly on the pole, the antenna is mounted at the top of the pole, and conduit and cabling are inside the pole. This example shows some cables looping from the underside of the radios, but this could be covered with a very minimal shroud.



Source: Google Street View 2019
(Caesar Chavez in San Francisco)

ConcealFab Dual SUP Sunshield

7

Streetlight Pole Street Signs Design Comments: Note radio and other ancillary equipment are placed entirely behind street signs, between the sign and pole, antennae are mounted at the top of the pole, conduit and cabling are inside the pole.



Source: Verizon Site Photo of Node in San Francisco (4G facility with (2) 5 watt pole mounted mRRUs and 2 foot pole top antenna)

Street Furniture Design Comments: Note antenna, radio and ancillary equipment are housed within the envelope of existing or new street furniture, such as a bus shelter.

Ericsson unveils connected bus stop

Posted on June 4, 2015 by IEEE Connected Vehicles

Ericsson demonstrated a connected bus stop concept at UITP World Congress and Exhibition that incorporates 3G, LTE or Wi-Fi small cell technology. The connected bus stop's small cell infrastructure will provide public transport operators with an additional source of revenue, as it can be leased to telecom mobile operators as a means of densifying their networks.



©Ericsson

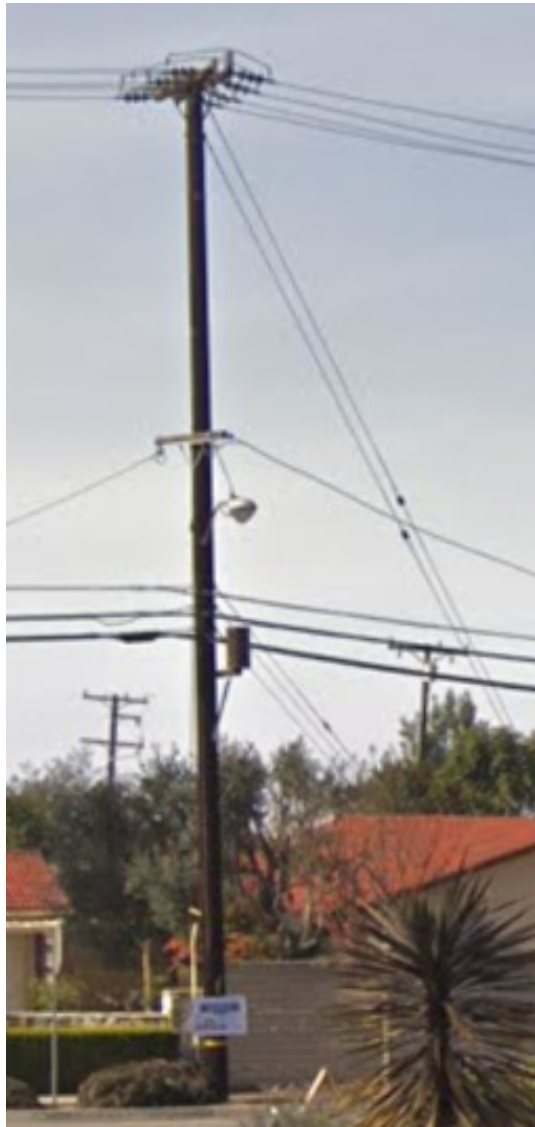
Ericsson demonstrated a connected bus stop concept at UITP World Congress and Exhibition, the world's biggest public transport event, that incorporates 3G, LTE or Wi-Fi small cell technology. The connected bus stop's small cell infrastructure will provide public transport operators with an additional source of revenue, as it can be leased to telecom mobile operators as a means of densifying their networks. In addition to conventional consumer uses for mobile broadband, the connected bus stop will support functionality that is particularly useful for commuters. This could include screens that display real-time information about bus movements and touch-screens that provide access to interactive maps, local news, tourist information and advertising. In addition, a closed-circuit television (CCTV)

camera, panic button and push-to-talk functionality could be incorporated to increase security and make it easy for commuters to contact emergency services or the police.

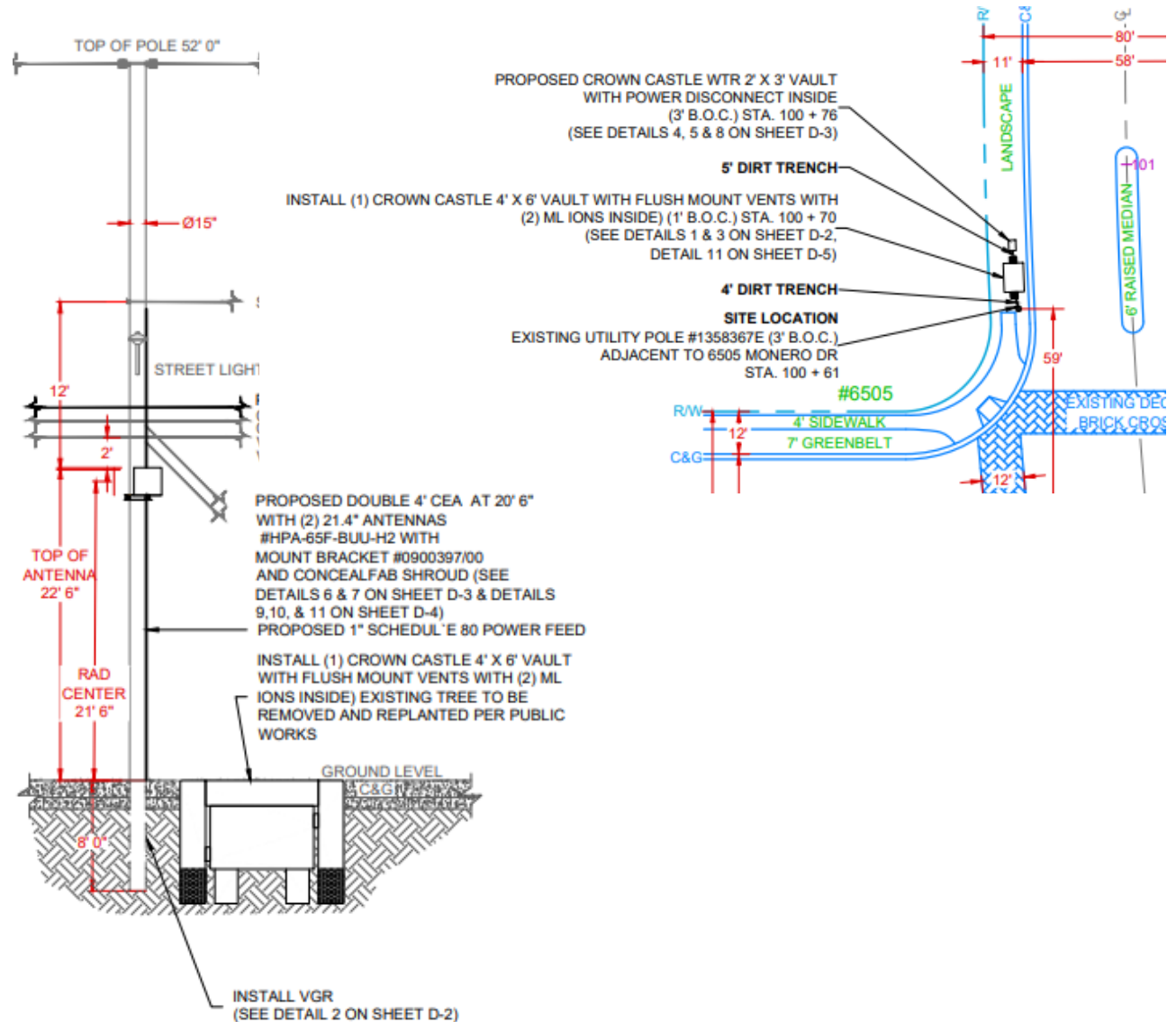
In dense urban environments such as shopping, business, entertainment and financial districts, capacity is often stretched to the limit and many networks can't consistently deliver high downlink speeds. The connected bus stop alleviates this problem by creating a separate small cell access network that is integrated with telecom operators' transmission networks. Ericsson provides the technology and associated services in a partnership with transport operators and local telecom network operators.

Source: Ericsson via the IEEE website: <http://sites.ieee.org/connected-vehicles/2015/06/04/ericsson-unveils-connected-bus-stop>

Wood Utility Pole Underground Design Comments: This street view of a mock-up site shows use of a vault for radio and other equipment and shows a side-mounted antenna, instead of an antenna mounted to the top of the pole atop a wooden bayonet extension. This design was approved in 2018 in Rancho Palos Verdes with the vault and with a smaller antenna canister than what is shown in the mockup and in the draft project plans (excerpts below).

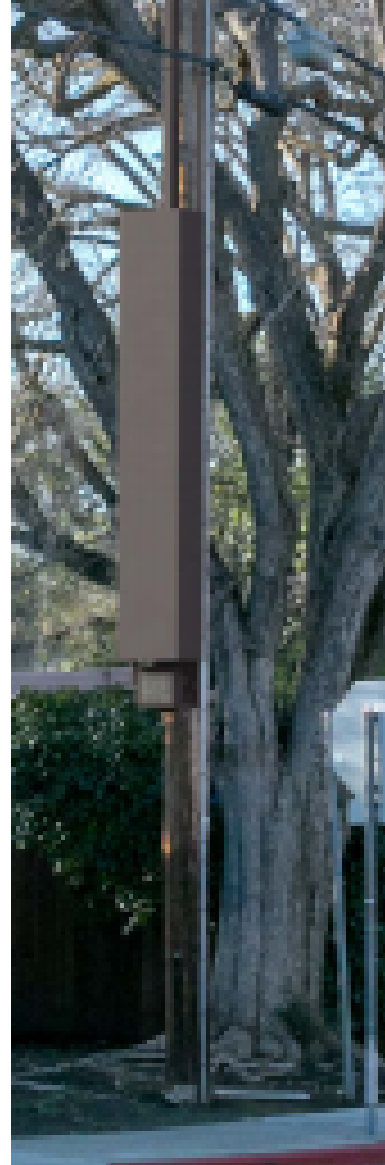


Source: Google Street View 2018
(Monero Drive in Rancho Palos Verdes)



Source: Crown Castle Preliminary Plans ASG53m1 Sheet P-2 via City of Rancho Palos Verdes website (<https://www.rpvca.gov/DocumentCenter/View/8117/ASG53>)

Wood Utility Pole Side-Mounted Design Comments: Note tapered narrow shroud on wooden bayonet extension or cap-mount tapered shroud on a replacement pole. Radio and other ancillary equipment are housed in shroud mounted to the side of the pole, the antenna is mounted on a bayonet at the top of the pole and conduit is attached flush to the pole. The picture on the far right shows an example of newer equipment consistent with the proposed side-mount standards, approximately half the size of previous installations.



Source: Vinculums/Verizon Cluster 1 Visual Simulations

Source: Verizon Visual
Simulation of Node Proposed in Fremont

Wood Utility Pole Top-Mounted Design Comments: Note all antenna, radio, and other ancillary equipment are housed in a single shroud at the top of a wooden bayonet extension or at the top of a replacement pole and conduit is attached flush to the pole. Equipment can be painted to match the pole. Pole top designs may not be compatible with all wood utility poles, specifically based on overall height and stability.



Source: ConcealFab 14" or 18" Pole Top Shroud

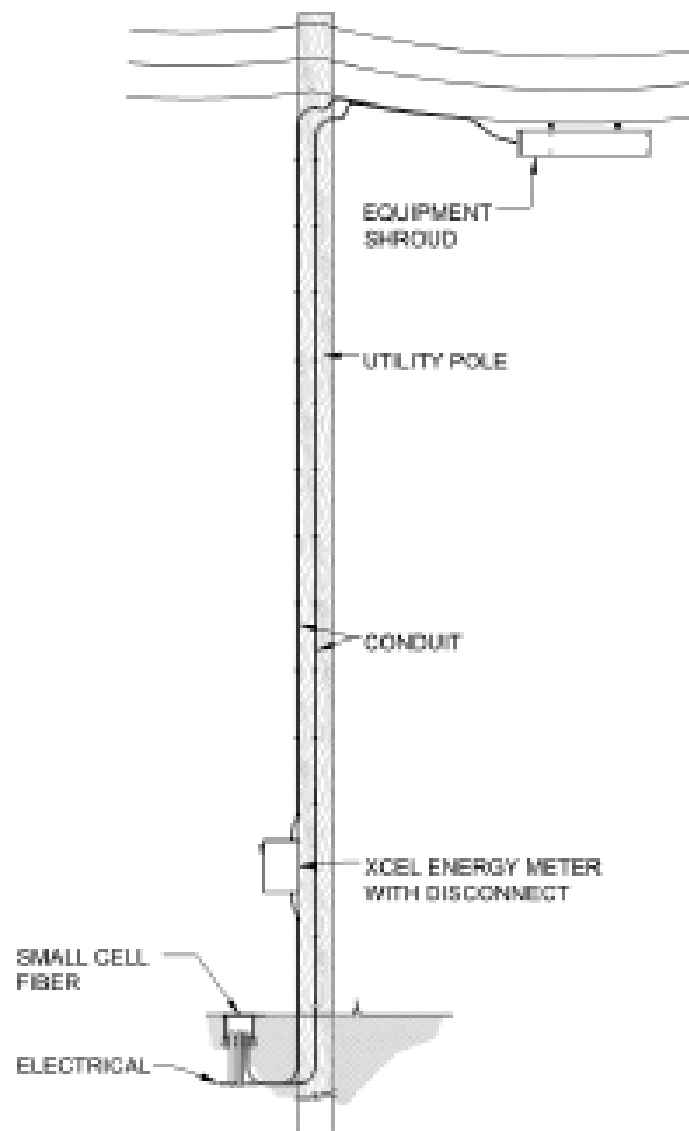
Wood Utility Pole Strand-Mount Design Comments: Note antenna, radio and other ancillary equipment are clamped to the steel cable strand that runs between poles that supports other telephone and cable company cables. The design would use one or two shrouds. Cabling and conduit would be closely attached the cable strand.



Strand-mount bracket

Install up to four outdoor micro radios, on existing aerial cables, and delivering a zero-footprint – suitable for both single and multi-operator usage.

Source: Ericsson via Ericsson website
<https://www.ericsson.com/en/networks/offerings/small-cells/small-cell-evolution>



Source: City and County of Denver
 Figure 2-2 Small Cell Infrastructure Design Guidelines

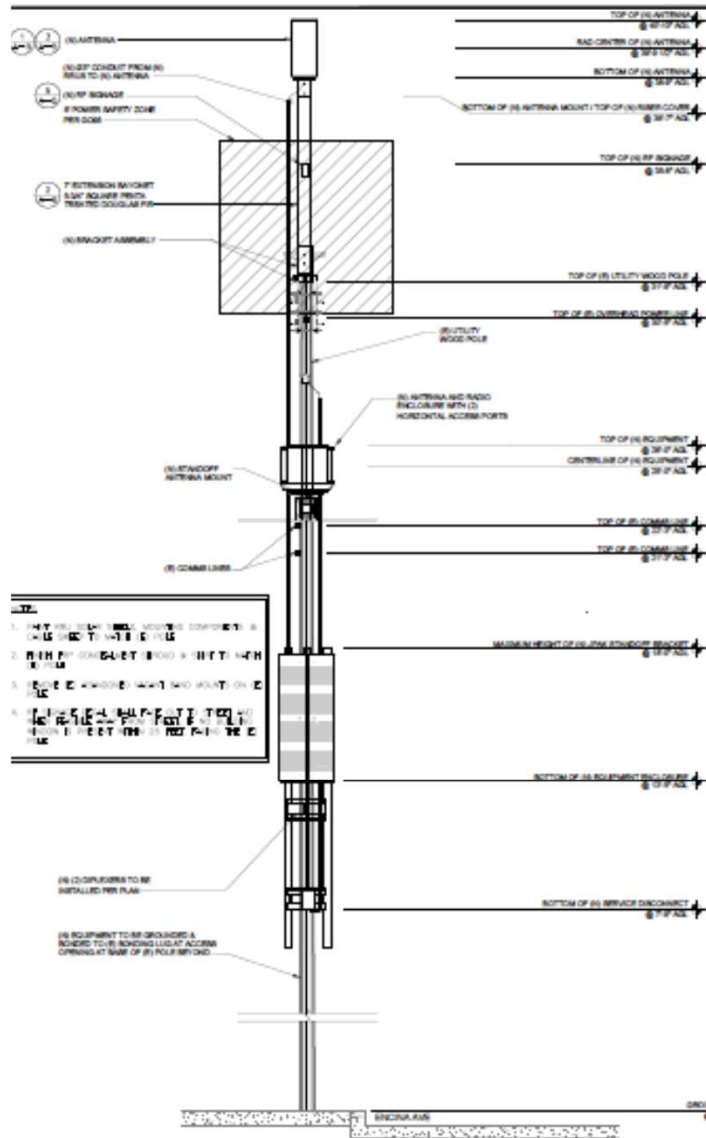
Streetlight Pole Design Comments – Previous Review: Note equipment storage in faux mailbox close to curblin on a narrow sidewalk, note equipment in side-mounted shroud close to curblin over a narrow sidewalk, et cetera. **(Design elements not preferred by the ARB)**



Source: Crown Castle Cluster 2 Visual Simulations



Wood Utility Pole Design Comments – Previous Review: Note unshrouded wooden bayonet extension, unshrouded equipment on mounting bracket, mounting bracket longer than necessary, mounting bracket likely overextended from pole, equipment placed too close to curblineline, etcetera. (Design elements not preferred by the ARB)



Source: AT&T Preliminary Architectural Review Draft Project Plans

Wood Utility Pole Design Comments – Previous Review: Note long wide shroud on wooden bayonet extension, unshrouded wooden bayonet extension, unshrouded equipment on mounting bracket, mounting bracket with equipment contained in shrouds of different size. **(Design elements not preferred by the ARB)**



Source: Vinculums/Verizon Cluster 1 Visual Simulations

Wood Utility Pole Design Comments – Previous Review: Note long wide shroud on wooden bayonet extension, unshrouded equipment on mounting bracket, shrouded equipment on mounting bracket, mounting bracket longer than necessary, mounting bracket likely overextended from pole, equipment facing private property and overhanging sidewalk, et cetera. **(Design elements not preferred by the ARB)**



Source: Crown Castle Cluster 3 Visual Simulations

ATTACHMENT E
EXAMPLE COMPREHENSIVE PLAN GOALS AND POLICIES
PERTAINING TO WIRELESS IN THE RIGHT OF WAY DESIGN

GOAL L-4 Inviting pedestrian scale centers that offer a variety of retail and commercial services and provide focal points and community gathering places for the city's residential neighborhoods and employment districts.

POLICY L-4.3 - Encourage street frontages that contribute to retail vitality in all Centers. Reinforce street corners in a way that enhances the pedestrian realm or that form corner plazas. Include trees and landscaping.

POLICY L-4.4 Ensure all Regional Centers and Multi-Neighborhood Centers provide centrally located gathering spaces that create a sense of identity and encourage economic revitalization. Encourage public amenities such as benches, street trees, kiosks, restrooms and public art.

POLICY L-4.7 Maintain and enhance the University Avenue/Downtown area as a major commercial center of the City, with a mix of commercial, civic, cultural, recreational and residential uses. Promote quality design that recognizes the regional and historical importance of the area and reinforces its pedestrian character.

POLICY L-4.8 Ensure that University Avenue/Downtown is pedestrian-friendly and supports bicycle use. Use public art, trees, bicycle racks and other amenities to create an environment that is inviting to pedestrians and bicyclists.

GOAL L-6 Well-designed buildings that create coherent development patterns and enhance city streets and public spaces.

POLICY L-6.1 Promote high-quality design and site planning that is compatible with surrounding development and public spaces.

POLICY L-6.2 Use the Zoning Ordinance, design review process, design guidelines and Coordinated Area Plans to ensure high quality residential and commercial design and architectural compatibility.

POLICY L-6.4 In areas of the City having a historic or consistent design character, encourage the design of new development to maintain and support the existing character.

POLICY L-6.5 Guide development to respect views of the foothills and East Bay hills along public street corridors in the developed portions of the City.

GOAL L-7 Conservation and preservation of Palo Alto's historic buildings, sites and districts.

POLICY L-7.1 Encourage public and private upkeep and preservation of resources that have historic merit, including residences listed in the City's Historic Resource Inventory, the California Register of Historical Resources, or the National Register of Historic Places.

GOAL L-9 Attractive, inviting public spaces and streets that enhance the image and character of the city.

POLICY L-9.1 Recognize Sand Hill Road, University Avenue between Middlefield Road and San Francisquito Creek, Embarcadero Road, Page Mill Road, Oregon Expressway, Interstate 280, Arastradero Road (west of Foothill Expressway), Junipero Serra Boulevard/Foothill Expressway and Skyline Boulevard as scenic routes and preserve their scenic qualities.

POLICY L-9.3 Treat residential streets as both public ways and neighborhood amenities. Provide and maintain continuous sidewalks, healthy street trees, benches and other amenities that promote walking and "active" transportation.

POLICY L-9.4 Maintain and enhance existing public gathering places and open spaces and integrate new public spaces at a variety of scales.

POLICY L-9.5 Encourage use of data-driven, innovative design methods and tactics and use data to understand to evaluate how different community members use public space.

POLICY L-9.7 Strengthen the identity of important community-wide gateways, including the entrances to the City at Highway 101, El Camino Real and Middlefield Road; the Caltrain stations; entries to commercial districts; Embarcadero Road at El Camino Real and between Palo Alto and Stanford.

POLICY L-9.8 Incorporate the goals of the Urban Forest Master Plan, as periodically amended, into the Comprehensive Plan by reference in order to assure that new land uses recognize the many benefits of trees in the urban context and foster a healthy and robust tree canopy throughout the City.

POLICY L-9.10 Design public infrastructure, including paving, signs, utility structures, parking garages and parking lots to meet high-quality urban design standards and embrace technological advances. Look for opportunities to use art and artists in the design of public infrastructure. Remove or mitigate elements of existing infrastructure that are unsightly or visually disruptive.

Program L9.10.1 Continue the citywide undergrounding of utility wires. Minimize the impacts of undergrounding on street tree root systems and planting areas.

Program L9.10.2 Encourage the use of compact and well-designed utility elements, such as transformers, switching devices, backflow preventers and telecommunications infrastructure. Place these elements in locations that will minimize their visual intrusion.

POLICY L-9.11 Provide utilities and service systems to serve all urbanized areas of Palo Alto and plan infrastructure maintenance and improvements to adequately serve existing and planned development.

Program L9.11.1 Implement the findings of the City's Infrastructure Blue Ribbon Committee and its emphasis for rebuilding our civic spaces.

Program L9.11.2 Identify City-owned properties where combinations of wireless facilities can be co-located, assuming appropriate lease agreements are in place.

GOAL T-6 Provide a safe environment for motorists, pedestrians and bicyclists on Palo Alto streets.

POLICY T-6.1 Continue to make safety the first priority of citywide transportation planning. Prioritize pedestrian, bicycle and automobile safety over motor vehicle level of service at intersections and motor vehicle parking.

GENERAL NOTES:

1. UTILITY BOX SIZE AND MATERIAL SHALL PER UTILITY COMPANY STANDARDS. IF UTILITY BOXES ARE LOCATED IN THE SIDEWALK, REPLACE FULL WIDTH OF SIDEWALK TO NEAREST CONSTRUCTION JOINT PER CITY STANDARD NO. 217.
2. EXISTING STREET LIGHT POLE MAY BE UTILIZED IF IT MEETS STRUCTURAL REQUIREMENTS TO SUPPORT NEW AND EXISTING EQUIPMENT. IF EXISTING POLE IS REPLACED, A NEW POLE (MAXIMUM 12-IN DIAMETER) SHALL BE INSTALLED IN THE ORIGINAL LOCATION.
3. ENCLOSURE CONTAINING RADIO EQUIPMENT SHALL NOT EXCEED FOUR (4) CUBIC FEET IN SIZE. ONLY ONE VISIBLE ANTENNA PER "SEMI-STEALTH" SITE SHALL BE PERMITTED. ANTENNA IS NOT INCLUDED IN FOUR (4) CUBIC FOOT REQUIREMENT.
4. ALL CONSTRUCTION SHALL COMPLY WITH REQUIREMENTS OF SECTION 230.96 OF THE HUNTINGTON BEACH ZONING CODE.
5. EXISTING STREET LIGHT LUMINAIRE AND MAST ARMS ARE TO BE SALVAGED AND RE-USED IF POLE IS REPLACED. ANY SALVAGED EQUIPMENT NOT USED SHALL BE RETURNED TO THE CITY.
6. INSTALL VAULTS IN LOCATION THAT ALLOWS A 2-FT WIDE CLEAR AREA ADJACENT TO THE VAULT TO ALLOW FOR FUTURE CONDUIT INSTALLATIONS OR STREET WORK.
7. PULL-BOX WITH POWER SWITCH AND BREAKER SHALL LOCATED NO MORE THAN 20-FT FROM THE BASE OF THE SITE UTILITY POLE. BOX LID SHALL BE ENGRAVED WITH TEXT HEIGHT NO SMALLER THAN 3/4-IN CONTAINING THE FOLLOWING TEXT: "CELL SITE POWER SHUT-OFF SWITCH" AND HAVE THE SITE OWNER NAME, SITE ID, SITE ADDRESS AND EMERGENCY CONTACT PHONE NUMBER.
8. PAINT ANTENNA(S) / EQUIPMENT TO MATCH POLE.
9. MAXIMUM OFFSET FOR RISER CONDUITS SHALL BE 4-IN.

GIS NOTES:

DIGITAL SUBMITTAL REQUIREMENTS FOR DATA TO BE USED BY THE CITY'S GEOGRAPHICAL INFORMATION SYSTEM (GIS) IN PREPARING EXHIBITS, MAPS, ETC.:

1. PROVIDE DATA IN A VECTOR FORMAT. EXAMPLES OF SOME ACCEPTABLE FORMATS ARE:
 - AUTOCAD (.DWG OR .DXF)
 - GOOGLE EARTH (.KML OR .KMZ)
 - SHAPEFILE (.SHP)
2. USE UNDERSCORES OR HYPHENS IN THE FILE NAME, NOT SPACES. PROVIDE A SEPARATE DRAWING FILE FOR EACH INDIVIDUAL SHEET CREATED IN AUTOCAD.
3. FOR AUTOCAD FILES OR SHAPEFILES, DEFINE THE COORDINATE SYSTEM AS NAD 1983 STATE PLANE, CALIFORNIA ZONE 6 (US FEET).
4. FOR AUTOCAD FILES, CREATE ALL DATA ELEMENTS IN MODEL SPACE, ADD LAYOUT ELEMENTS IN LAYOUT SPACE, SAVE THE MODEL IN MODEL SPACE, DO NOT ADD VIEWPORTS TO MODEL SPACE AND EXPLODE THE BLOCKS.
5. PROVIDE DATA FOR ALL CONDUITS, BOXES, NODES, ETC. INSTALLED DURING THE PROJECT. SUBMITTAL SHALL BE FROM "AS-BUILT" DATA, NOT ORIGINAL DESIGNS.

APPROVED:



CITY ENGINEER

CITY OF HUNTINGTON BEACH

DEPARTMENT OF PUBLIC WORKS

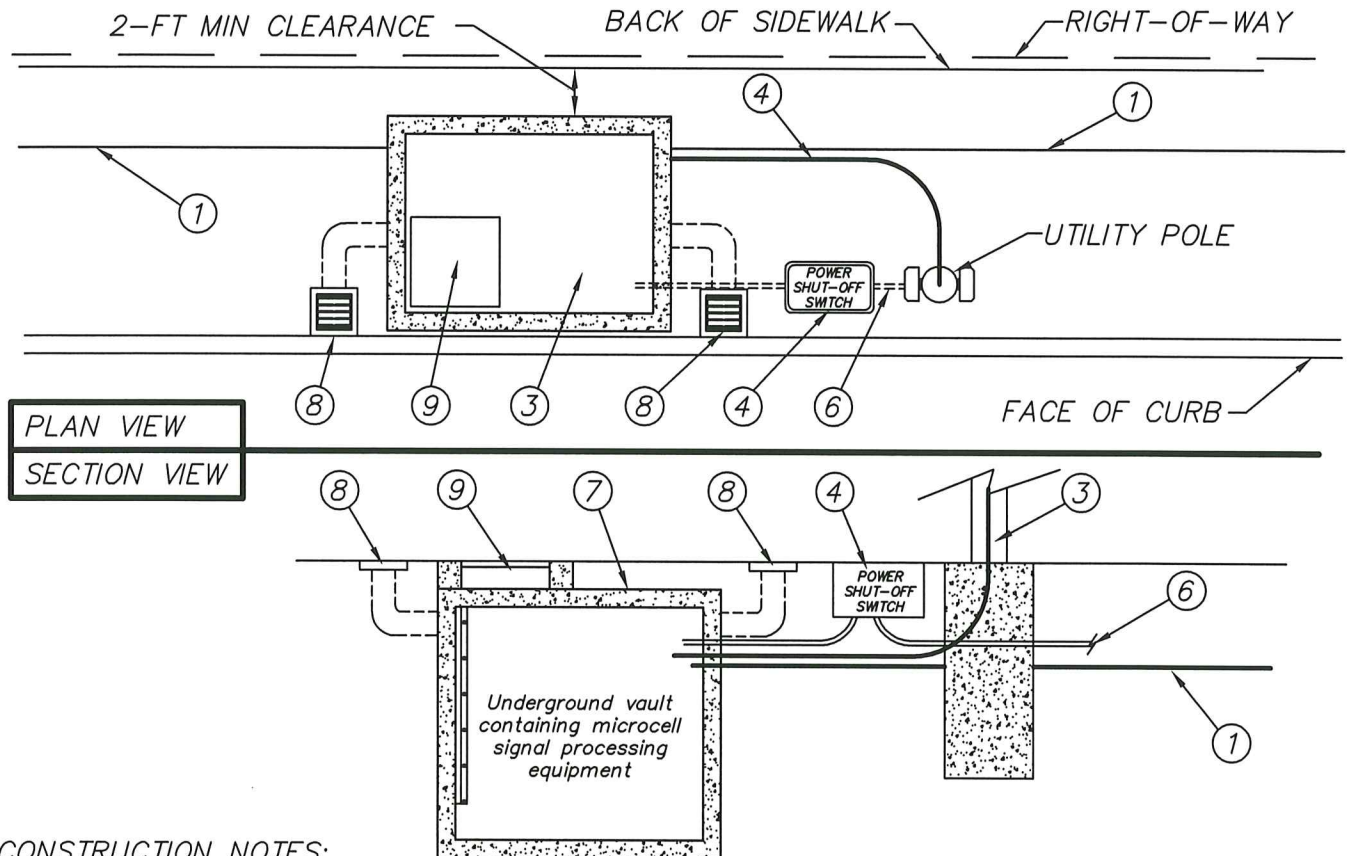


GENERAL NOTES FOR
SMALL CELL INSTALLATIONS

REVISION DATE: November 16, 2017

STANDARD PLAN
800
1 OF 1

Packet Pg. 72

**CONSTRUCTION NOTES:**

- ① INSTALL COMMUNICATIONS CONDUIT PER CITY STANDARD NO. 215. SEPARATE ENCROACHMENT PERMIT REQUIRED.
- ② NOT USED
- ③ INSTALL CONDUIT PER UTILITY COMPANY STANDARDS.
- ④ INSTALL PULL-BOX WITH SWITCH AND BREAKER LOCATED NO MORE THAN 20-FT FROM BASE OF UTILITY POLE. BOX LID SHALL BE MARKED "CELL SITE POWER SHUT-OFF SWITCH" OR OTHER APPROVED INDUSTRY WORDING. BOX SIZE DETERMINED BY EQUIPMENT REQUIREMENTS.
- ⑤ INSTALL PULL-BOX PER SCE REQUIREMENTS.
- ⑥ SCE POWER CONDUIT IF POWER SOURCE IS SUPPLIED FROM ADJACENT POLE OR OTHER CIRCUIT.
- ⑦ INSTALL OLDCASTLE PRECAST VAULT – MODEL MC510 OR APPROVED EQUAL.
- ⑧ INSTALL FLUSH VENT – ALHAMBRA FOUNDRY MODEL A-2121 OR APPROVED EQUAL.
- ⑨ INSTALL ACCESS HATCH PER VAULT MANUFACTURER.

GENERAL NOTES:

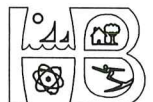
– SEE STANDARD PLAN NO. 800 PG. 1 FOR GENERAL NOTES.

APPROVED:

[Signature]
CITY ENGINEER

CITY OF HUNTINGTON BEACH

DEPARTMENT OF PUBLIC WORKS



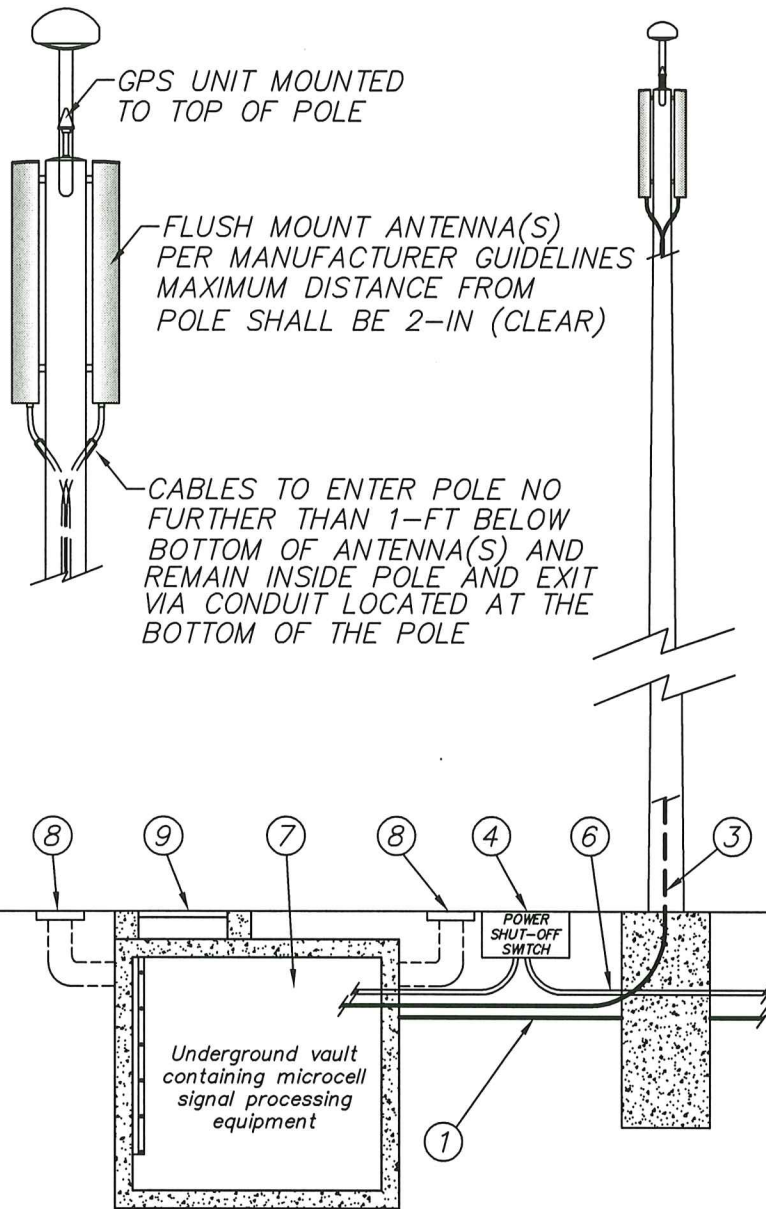
SMALL CELL INSTALLATION

CASE 1: EQUIPMENT UNDERGROUND

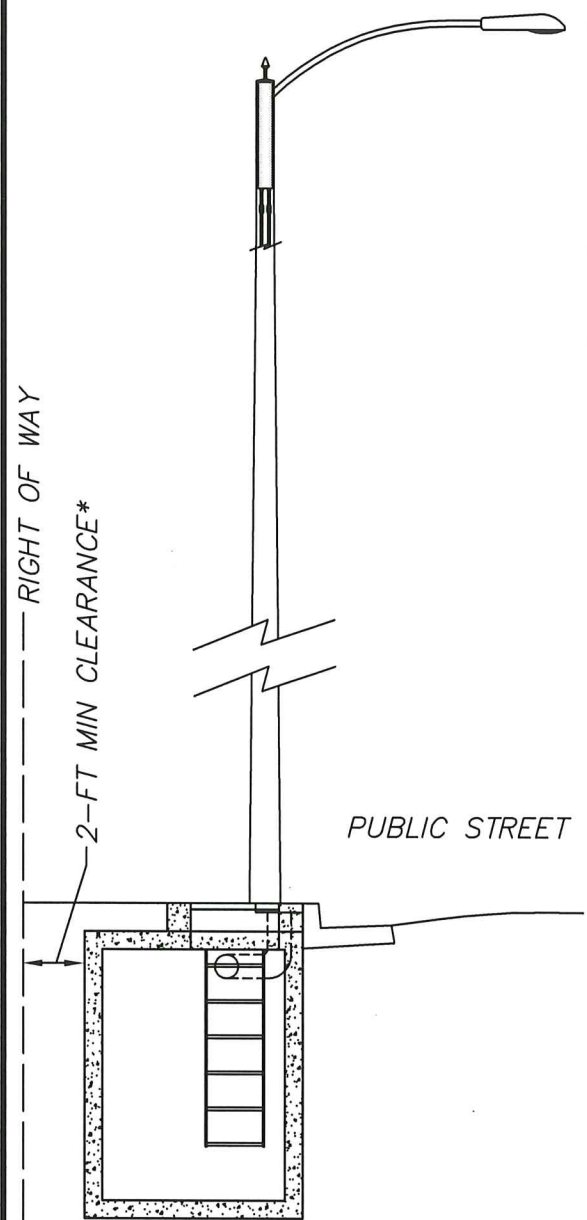
STANDARD PLAN
801

REVISION DATE: November 16, 2017

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STREET-SIDE VIEW



SECTION VIEW

NOTES:

- SEE CITY STANDARD NO. 801 PAGE 1 FOR CONSTRUCTION NOTES.

GENERAL NOTES:

- SEE STANDARD PLAN NO. 800 PAGE 1 FOR GENERAL NOTES.

APPROVED:

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CITY ENGINEER

CITY OF HUNTINGTON BEACH

DEPARTMENT OF PUBLIC WORKS



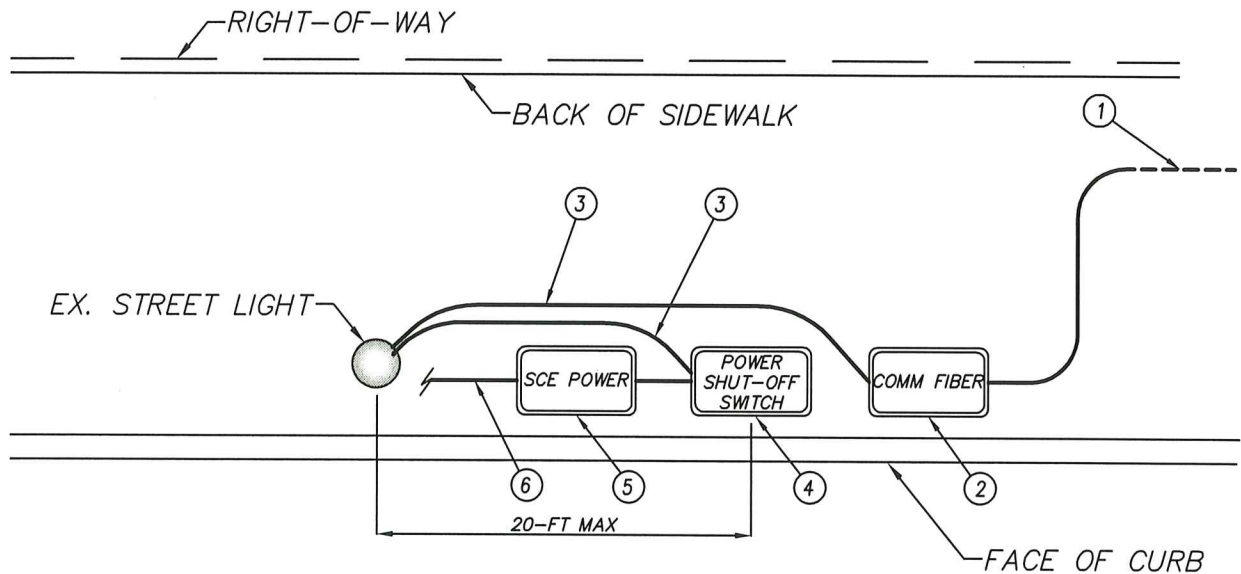
SMALL CELL INSTALLATION

CASE 1: EQUIPMENT UNDERGROUND

STANDARD PLAN
801
2 of 2

REVISION DATE: November 16, 2017

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PLAN VIEW

*NOTE: FOR CLARITY, STREET LIGHT LUMINAIR AND MAST ARM NOT SHOWN.

CONSTRUCTION NOTES:

- ① INSTALL COMMUNICATIONS CONDUIT PER CITY STANDARD NO. 215. SEPARATE ENCROACHMENT PERMIT REQUIRED.
- ② INSTALL COMMUNICATIONS PULL-BOX SIZED PER UTILITY COMPANY STANDARDS.
- ③ INSTALL CONDUIT PER UTILITY COMPANY STANDARDS.
- ④ INSTALL PULL-BOX WITH SWITCH AND BREAKER LOCATED NO MORE THAN 20-FT FROM BASE OF UTILITY POLE. BOX LID SHALL BE MARKED "CELL SITE POWER SHUT-OFF SWITCH" OR OTHER APPROVED INDUSTRY WORDING. BOX SIZE DETERMINED BY EQUIPMENT REQUIREMENTS.
- ⑤ INSTALL PULL-BOX PER SCE REQUIREMENTS.
- ⑥ SCE POWER CONDUIT IF POWER SOURCE IS SUPPLIED FROM ADJACENT POLE OR OTHER CIRCUIT.

GENERAL NOTES:

- SEE STANDARD PLAN NO. 800 PG. 1 FOR GENERAL NOTES.

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CITY OF HUNTINGTON BEACH

DEPARTMENT OF PUBLIC WORKS



SMALL CELL INSTALLATION

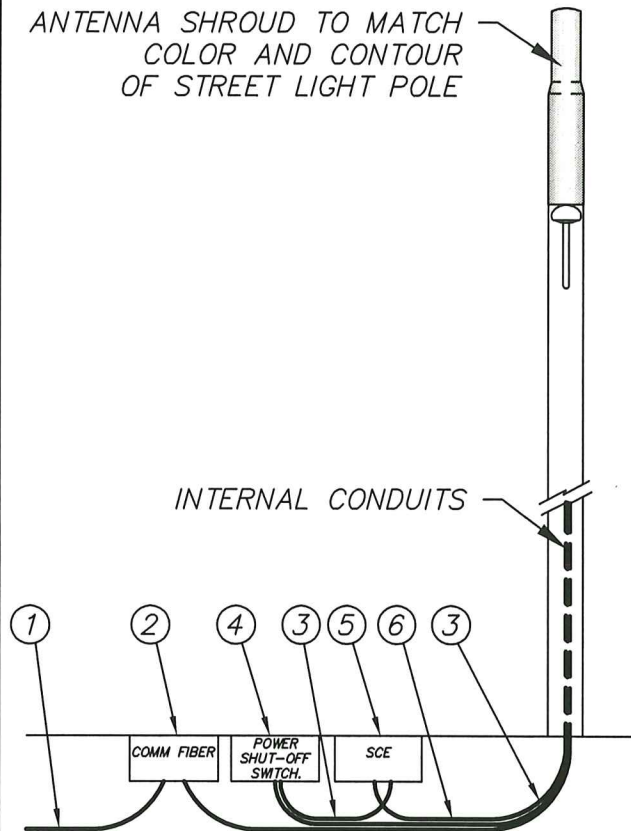
CASE 2: "STEALTH" POLE

STANDARD PLAN
802
1 of 2

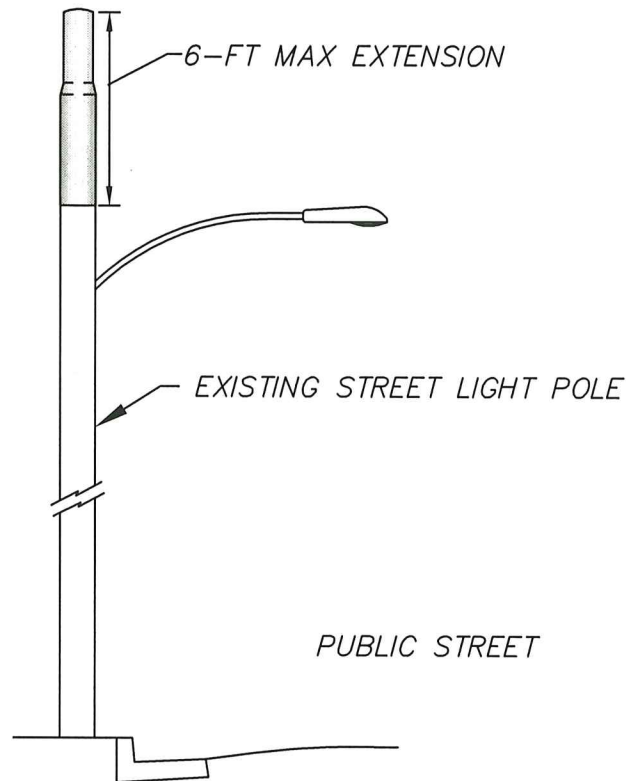
REVISION DATE: November 16, 2017

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ANTENNA SHROUD TO MATCH
COLOR AND CONTOUR
OF STREET LIGHT POLE



STREET-SIDE VIEW



SECTION VIEW

CONSTRUCTION NOTES:

- ① INSTALL COMMUNICATIONS CONDUIT PER CITY STANDARD NO. 215. SEPARATE ENCROACHMENT PERMIT REQUIRED.
- ② INSTALL COMMUNICATIONS PULL-BOX SIZED PER UTILITY COMPANY STANDARDS.
- ③ INSTALL CONDUIT PER UTILITY COMPANY STANDARDS.
- ④ INSTALL PULL-BOX WITH SWITCH AND BREAKER LOCATED NO MORE THAN 20-FT FROM BASE OF UTILITY POLE. BOX LID SHALL BE MARKED "CELL SITE POWER SHUT-OFF SWITCH" OR OTHER APPROVED INDUSTRY WORDING. BOX SIZE DETERMINED BY EQUIPMENT REQUIREMENTS.
- ⑤ INSTALL PULL-BOX PER SCE REQUIREMENTS.
- ⑥ SCE POWER CONDUIT IF POWER SOURCE IS SUPPLIED FROM ADJACENT POLE OR OTHER CIRCUIT.

GENERAL NOTES:

— SEE STANDARD PLAN NO. 800 PG. 1 FOR GENERAL NOTES.

APPROVED:

[Signature]
CITY ENGINEER

CITY OF HUNTINGTON BEACH

DEPARTMENT OF PUBLIC WORKS

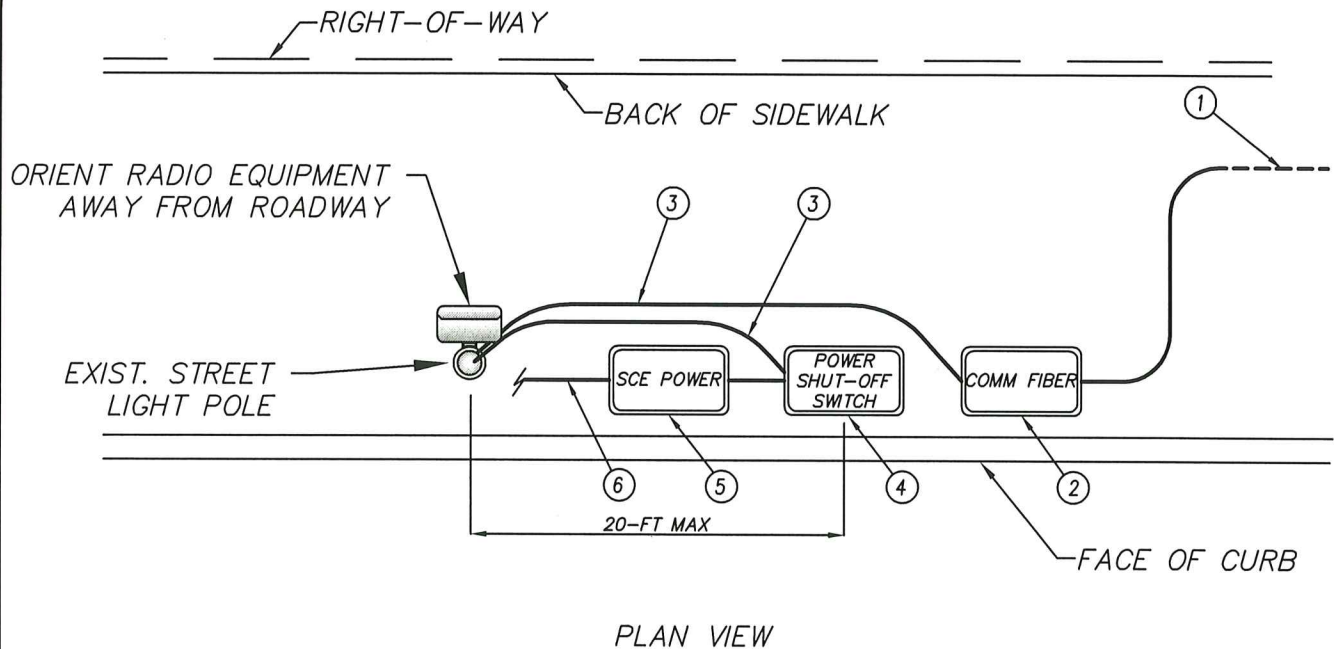


SMALL CELL INSTALLATION

CASE 2: "STEALTH" POLE

STANDARD PLAN
802

REVISION DATE: November 16, 2017



*NOTE: FOR CLARITY, STREET LIGHT LUMINAIR AND MAST ARM NOT SHOWN.

GENERAL NOTES:

- ① *INSTALL COMMUNICATIONS CONDUIT PER CITY STANDARD NO. 215. SEPARATE ENCROACHMENT PERMIT REQUIRED.*
- ② *INSTALL COMMUNICATIONS PULL-BOX SIZED PER UTILITY COMPANY STANDARDS.*
- ③ *INSTALL CONDUIT PER UTILITY COMPANY STANDARDS.*
- ④ *INSTALL PULL-BOX WITH SWITCH AND BREAKER LOCATED NO MORE THAN 20-FT FROM BASE OF UTILITY POLE. BOX LID SHALL BE MARKED "CELL SITE POWER SHUT-OFF SWITCH" OR OTHER APPROVED INDUSTRY WORDING. BOX SIZE DETERMINED BY EQUIPMENT REQUIREMENTS.*
- ⑤ *INSTALL PULL-BOX PER SCE REQUIREMENTS.*
- ⑥ *SCE POWER CONDUIT IF POWER SOURCE IS SUPPLIED FROM ADJACENT POLE OR OTHER CIRCUIT.*

GENERAL NOTES:

— SEE STANDARD PLAN NO. 800 PG. 1 FOR GENERAL NOTES.

APPROVED:


CITY ENGINEER

CITY ENGINEER

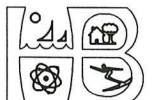
REVISION DATE: November 16, 2017

CITY OF HUNTINGTON BEACH

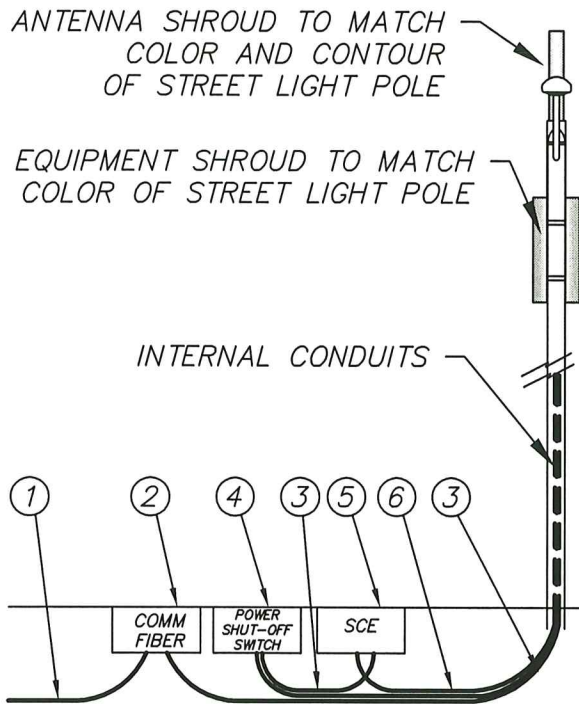
DEPARTMENT OF PUBLIC WORKS

SMALL CELL INSTALLATION

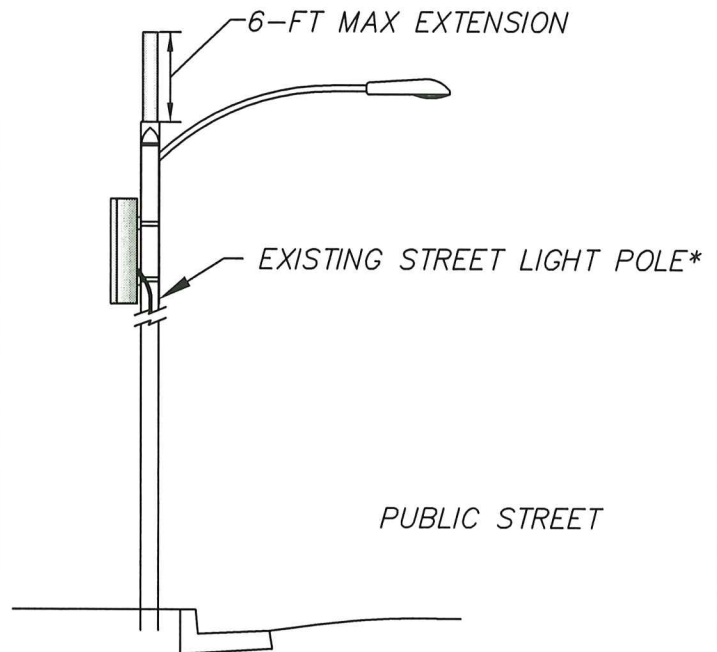
CASE 3: "SEMI-STEALTH" POLE

STANDARD PLAN
803

Packet Pg. 77



STREET-SIDE VIEW



SECTION VIEW

CONSTRUCTION NOTES:

- ① INSTALL COMMUNICATIONS CONDUIT PER CITY STANDARD NO. 215. SEPARATE ENCROACHMENT PERMIT REQUIRED.
- ② INSTALL COMMUNICATIONS PULL-BOX SIZED PER UTILITY COMPANY STANDARDS.
- ③ INSTALL CONDUIT PER UTILITY COMPANY STANDARDS.
- ④ INSTALL PULL-BOX WITH SWITCH AND BREAKER LOCATED NO MORE THAN 20-FT FROM BASE OF UTILITY POLE. BOX LID SHALL BE MARKED "CELL SITE POWER SHUT-OFF SWITCH" OR OTHER APPROVED INDUSTRY WORDING. BOX SIZE DETERMINED BY EQUIPMENT REQUIREMENTS.
- ⑤ INSTALL PULL-BOX PER SCE REQUIREMENTS.
- ⑥ SCE POWER CONDUIT IF POWER SOURCE IS SUPPLIED FROM ADJACENT POLE OR OTHER CIRCUIT.

GENERAL NOTES:

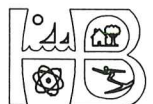
– SEE STANDARD PLAN NO. 800 PG. 1 FOR GENERAL NOTES.

APPROVED:

CITY ENGINEER

CITY OF HUNTINGTON BEACH

DEPARTMENT OF PUBLIC WORKS



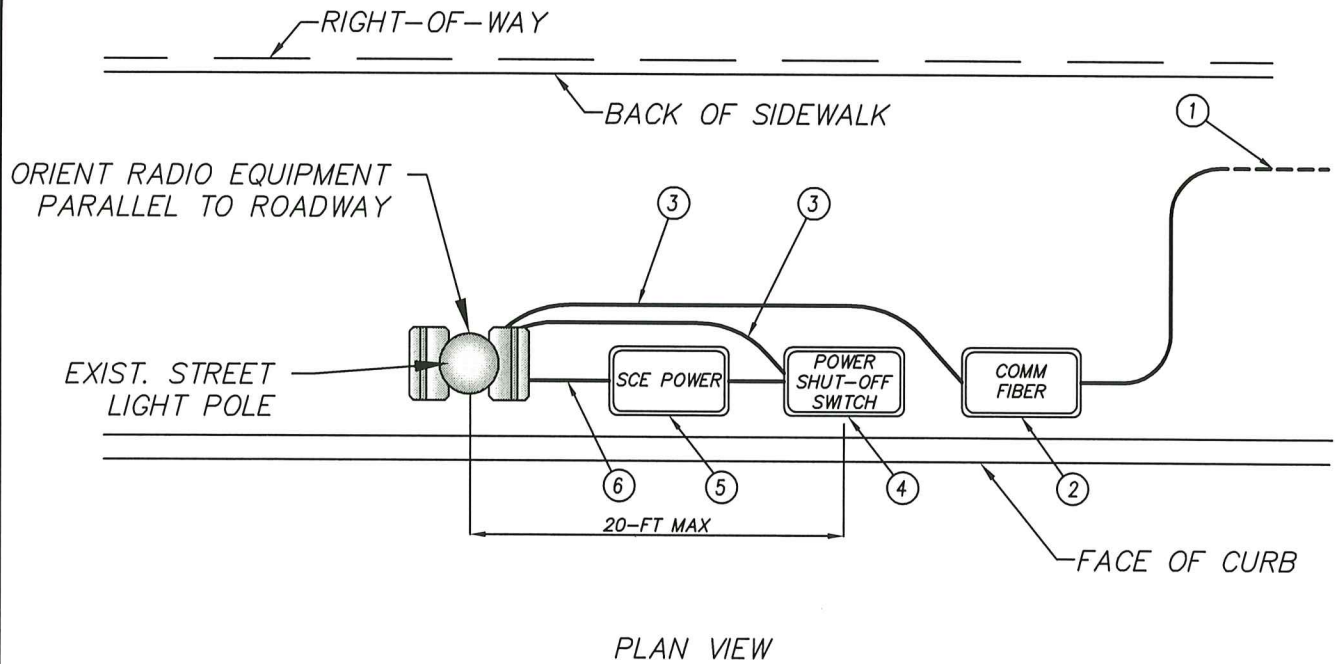
SMALL CELL INSTALLATION

CASE 3: "SEMI-STEALTH" POLE

STANDARD PLAN
803

REVISION DATE: November 16, 2017

Packet Pg. 78



*NOTE: FOR CLARITY, STREET LIGHT LUMINAIR AND MAST ARM NOT SHOWN.

CONSTRUCTION NOTES:

- ① INSTALL COMMUNICATIONS CONDUIT PER CITY STANDARD NO. 215. SEPARATE ENCROACHMENT PERMIT REQUIRED.
- ② INSTALL COMMUNICATIONS PULL-BOX SIZED PER UTILITY COMPANY STANDARDS.
- ③ INSTALL CONDUIT PER UTILITY COMPANY STANDARDS.
- ④ INSTALL PULL-BOX WITH SWITCH AND BREAKER LOCATED NO MORE THAN 20-FT FROM BASE OF UTILITY POLE. BOX LID SHALL BE MARKED "CELL SITE POWER SHUT-OFF SWITCH" OR OTHER APPROVED INDUSTRY WORDING. BOX SIZE DETERMINED BY EQUIPMENT REQUIREMENTS.
- ⑤ INSTALL PULL-BOX PER SCE REQUIREMENTS.
- ⑥ SCE POWER CONDUIT IF POWER SOURCE IS SUPPLIED FROM ADJACENT POLE OR OTHER CIRCUIT.

GENERAL NOTES:

SEE STANDARD PLAN NO. 800 PG. 1 FOR GENERAL NOTES.

APPROVED:

[Signature]
CITY ENGINEER

CITY OF HUNTINGTON BEACH

DEPARTMENT OF PUBLIC WORKS



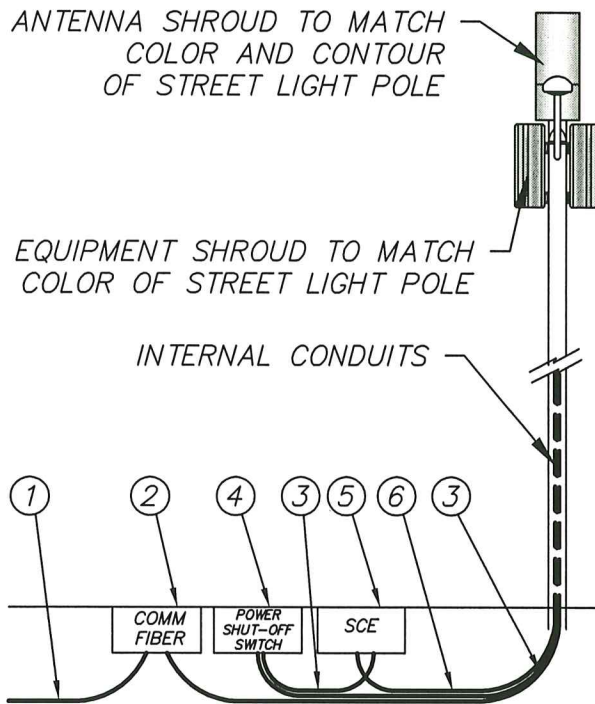
SMALL CELL INSTALLATION

CASE 4: "SLEEK" POLE

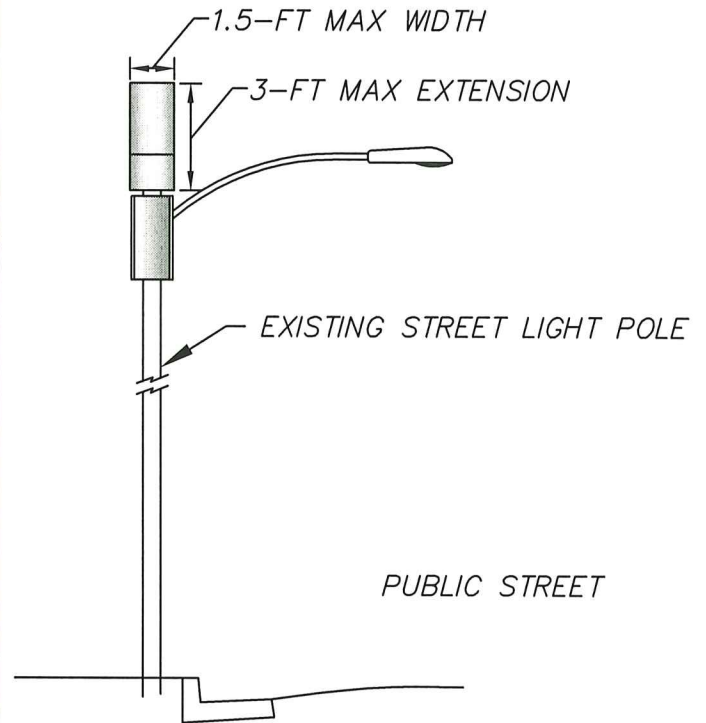
STANDARD PLAN
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STREET-SIDE VIEW



SECTION VIEW

CONSTRUCTION NOTES:

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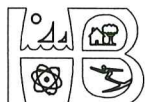
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APPROVED:

CITY ENGINEER

CITY OF HUNTINGTON BEACH

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SMALL CELL INSTALLATION

CASE 4: "SLEEK" POLE

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