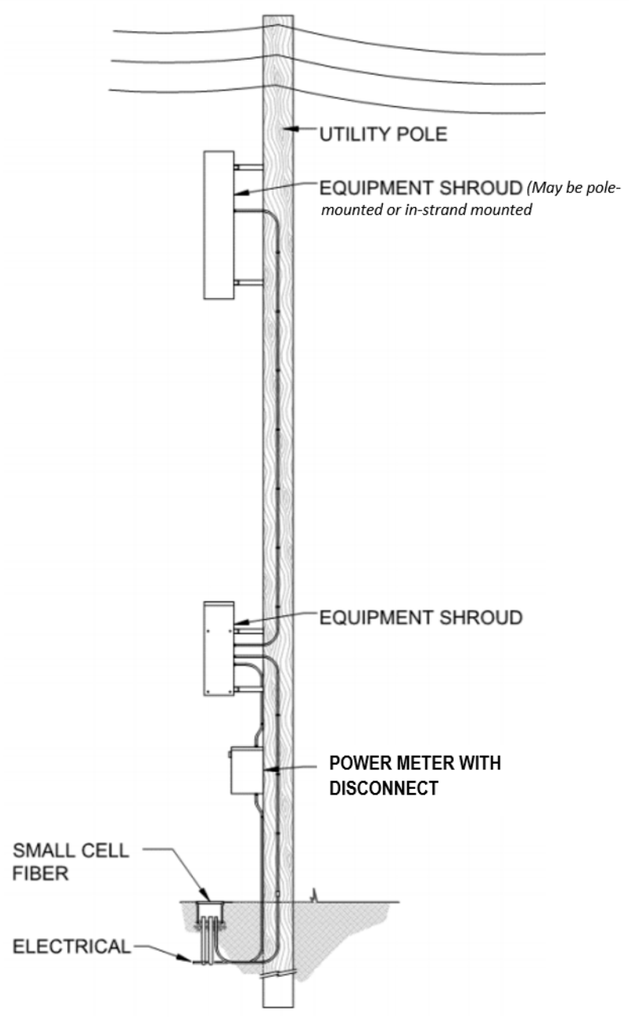
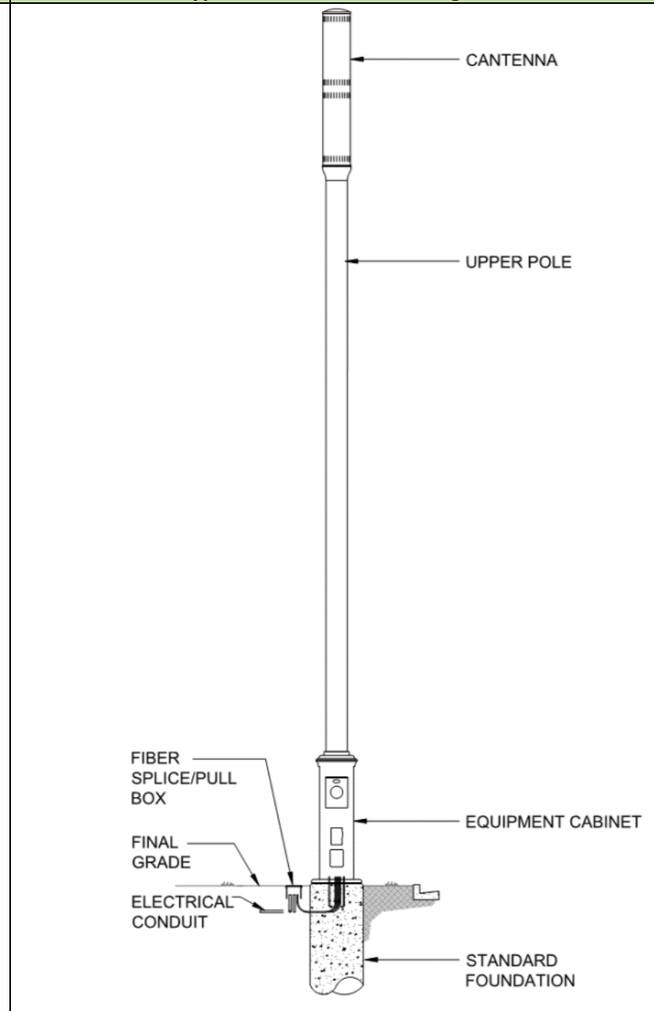
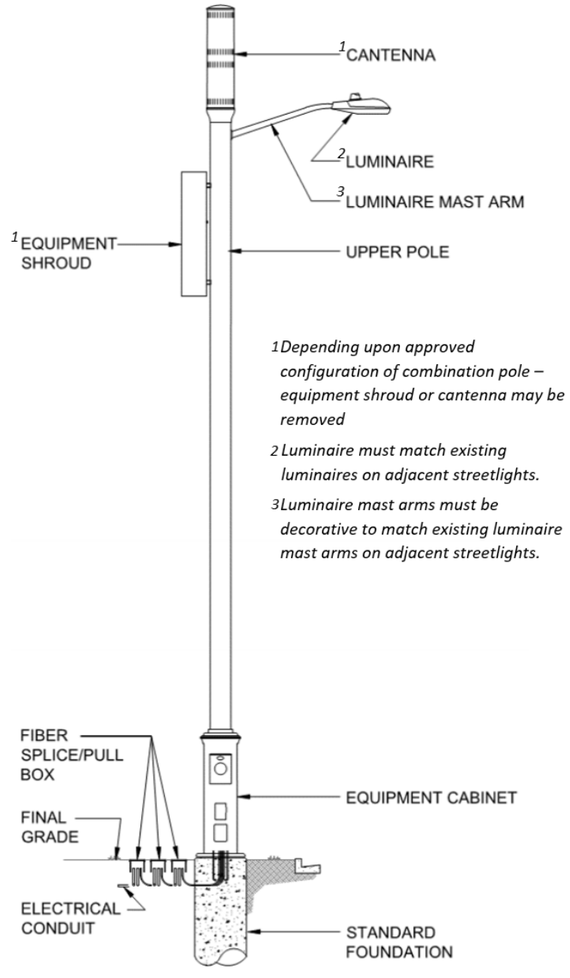
South Jordan City

Small Cell Infrastructure Design Requirements

Three different types of small cell installations are permitted within South Jordan City. These types include attachments to utility poles and utility lines (Type I), new freestanding installations (Type II), and removal and replacement of existing streetlights (Type III). When small wireless facilities are to be constructed in a right-of-way, the city's order of preference for a provider is 1) To install in-strand antennas (Type I), 2) To collocate on existing poles (Type I), 3) to collocate on new poles (Type II), or 4) To collocate on replacement poles in the same or nearly the same location (Type III). Deviations from this guideline shall be approved on a case-by-case basis by South Jordan City Engineer prior to installation.

Section	Type I - Utility Pole Attachment	Type II – New Freestanding Installation	Type III – Streetlight Replacement (Combination Pole)
1. Typical Configuration			 *1 Depending upon approved configuration of combination pole – equipment shroud or cantenna may be removed* *2 Luminaire must match existing luminaires on adjacent streetlights.* *3 Luminaire mast arms must be decorative to match existing luminaire mast arms on adjacent streetlights.*
2. General Requirements	• All attachments to existing utility poles within South Jordan City right of way require an approved application and encroachment permit prior to installation. • A maximum of three enclosures including the disconnect and antenna shall be installed at each utility pole location. No ground-mounted enclosures, including backup power supply, shall be allowed.	• All freestanding small cell poles within South Jordan City right of way require an approved application and encroachment permit prior to installation. • The pole design shall match the aesthetics of existing streetlights installed adjacent to the pole. The Carrier shall perform a visual	• All combination small cell and streetlight replacement applications require an approved application and encroachment permit prior to installation.. All equipment shall meet South Jordan City's Construction Standards and Specifications. • The same small cell pole aesthetic is to be used to match existing streetlights in the area and maintain a cohesive appearance. The Carrier

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	• All carrier equipment shall be removed and relocated at no cost to South Jordan City, if South Jordan City decides to underground the utility lines in the future. • No strand-mounted small cell devices shall be installed on poles with mounted streetlights. • Carrier shall submit evidence that the existing poles are appropriately sized and have sufficient strength to accommodate the additional small cell equipment loads. Carrier shall also submit a letter of approval from the pole owner for the small cell equipment to be installed on the specific pole. • Carrier shall certify that radiation is at safe levels by a non-ionizing radiation electromagnetic radiation report (NIER). The NIER report shall be endorsed by a qualified professional. Report shall be submitted to the pole owner and South Jordan City. It shall specify minimum approach distances to the general public as well as electrical and communication workers that are not trained for working in an RF environment (uncontrolled) when accessing the pole by climbing or bucket. • Carrier shall provide a disconnect so pole owners have the ability to easily shut off radio signals and power while working on the pole.	inspection (Online street images are acceptable) prior to submitting a permitting application to determine existing aesthetics. • All small cell carrier equipment shall be housed internal to the pole or hidden behind an exterior shroud. • The small cell components shall be sized to be visually pleasing. For a pole to be considered visually pleasing, the transition between the equipment cabinet and upper pole should be considered. A decorative transition shall be installed over the equipment cabinet upper bolts, or decorative base cover shall be installed to match the equipment cabinet size. • Each pole component shall be architecturally compatible to create a cohesive aesthetic. • Carrier shall certify that radiation is at safe levels by a non-ionizing radiation electromagnetic radiation report (NIER). The NIER report shall be endorsed by a qualified professional. Report shall be submitted to South Jordan City and it shall specify minimum approach distances to the general public. • City reserves the right to attach any sign (such as a no parking sign) on a freestanding installation within the right-of-way.	shall perform a visual inspection (online street images are acceptable) prior to submitting a permitting application to determine existing aesthetics. • All small cell carrier equipment shall be housed internal to the pole or hidden behind an exterior shroud. • The small cell components shall be sized to be visually pleasing. For a combination pole to be considered visually pleasing, the transition between the equipment cabinet and upper pole should be considered. A decorative transition shall be installed over the equipment cabinet upper bolts, or decorative base cover shall be installed to match the equipment cabinet size. • Each pole component shall be architecturally compatible to create a cohesive aesthetic. • Three variations of Type III streetlight replacements will be considered for installation: Type IIIa: Streetlight with a single cantenna Type IIIb: Streetlight with a single equipment shroud Type IIIc: Streetlight with a cantenna and single exterior equipment shroud • Type IIIc installation will be allowed when multiple technologies offered by the same carrier are installed on a single pole and to qualify, the Network Provider must demonstrate that the additional technology cannot be integrated into the equipment cabinet or the cantenna. • All pole mounted enclosures shall be securely attached with hardware (not strapped). • Carrier shall certify that radiation is at safe levels by a non-ionizing radiation electromagnetic radiation report (NIER). The NIER report shall be endorsed by a qualified professional. Report shall be submitted to the pole owner and South Jordan City. It shall specify minimum approach distances to the general public as well as electrical and communication workers that are not trained for working in an RF environment (uncontrolled) when accessing the pole by climbing or bucket. • Carrier shall provide a disconnect so pole owners have the ability to easily shut off radio signals and power while working on the pole.
3. Placement Requirements	• Equipment is attached to existing pole. • Don't impede, obstruct or hinder ADA access, pedestrian or vehicular travel	• Do not locate along the frontage of a Historic building, deemed historic on a federal, state, or local level. • Locate so as not to significantly create a new obstruction to property sight lines. • Locate between property lines as much as possible • For commercial areas - care should be taken to locate the small cell such that it does not negatively impact a business. Small cells shall not be located in-front of store front windows, primary walkways, primary entrances or exits, or in such a way that would impede deliveries. • Don't impede, obstruct or hinder ADA access, pedestrian or vehicular travel	• Poles can either be owned by South Jordan City or the applicant (as approved via Small Cell Application) • Don't impede, obstruct or hinder ADA access, pedestrian or vehicular travel • Locate in parkstrip (if possible) and in alignment with existing trees, utility poles and streetlights. • Locate equal distance between trees when possible, with a minimum of 15 feet separation. • Provide required clearances from any existing utilities • Locate outside of 30 foot clear vision triangle at intersections. • Do not obstruct sight distance at driveways or other accesses on to roadway.

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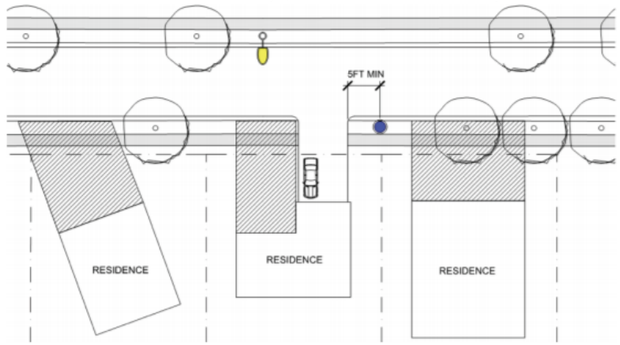
		• Locate in parkstrip (if possible) and in alignment with existing trees, utility poles and streetlights. • Locate equal distance between trees when possible, with a minimum of 15 feet separation. • Provide required clearances from any existing utilities • Locate outside of 30 foot clear vision triangle at intersections. • Do not obstruct sight distance at driveways or other accesses on to roadway. • Freestanding installations are not allowed within a right-of-way that is 60 feet wide or less and adjacent to residential. • Shall not be located within 100 feet of the apron of a fire station or other adjacent emergency service facility. • For residential areas - do not locate within the perpendicular extension of the primary street-facing wall plane, as shown below. Do not locate a small cell in front of driveways, entrances or walkways.  Do not locate small cell in the perpendicular extension of the primary street-facing wall plane Do not locate small cell in front of driveways, entrances, or walkways	• Streetlight replacement installations are not allowed within a right-of-way that is 60 feet wide or less and adjacent to residential.
4. Equipment Color	• Visible attachments and hardware shall be colored to match pole, or colored gray (7047) if located on a wooden pole.	• Equipment cabinet and pole shall be galvanized in accordance with AASHTO M 111. • The pole shall be powder coated black over zinc paint (Pole and equipment cabinet shall still be galvanized).	
5. Equipment Shroud / Cabinet	• 38”H x 16”W x 12”D maximum for pole-mounted equipment shroud. Strand-mounted equipment enclosures may not exceed 5.5 cubic feet. • All hardware attachments shall be hidden to the maximum extent possible.	• 16 inches (preferred), 20 inches maximum diameter. Maximum height of cabinet is 5’-8”. Cabinet to be round and installed below the pole. • Equipment cabinet and/or equipment cabinet cover shall not have a flat, horizontal surface larger than 1.5 inches. • All hardware attachments shall be hidden to the maximum extent possible.	• 16 inches (preferred), 20 inches maximum diameter. Maximum height of cabinet is 5’-8”. Cabinet to be round and installed below the pole. • If an antenna is located on the side of the pole, the antenna, radio equipment, brackets, and all other hardware required for a complete installation shall fit behind a 38”H x 16”W x 12”D maximum shroud, securely mounted (not strapped) to the pole. • Equipment cabinet and/or equipment cabinet cover shall not have a flat, horizontal surface larger than 1.5 inches. • All hardware attachments shall be hidden to the maximum extent possible.
6. Cantenna	• If a cantenna is located on top of the pole the outer diameter shall be 14” maximum and the cantenna shall be no more than 5 feet tall, including antenna, radio head, mounting bracket, and all other hardware necessary for a complete installation.	• The antenna and antenna pole attachment shall be shrouded to meet South Jordan City’s aesthetics. A tapered transition between the upper pole and cantenna shall be included. • The cantenna shroud may be up to 16-inchs maximum outer diameter x 5’ 8”maximum length. For 5G applications the 5G Remote Radio Head (RRH) may protrude an additional one inch beyond the outer diameter of the cantenna shroud (reference section 22 for examples).	

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	• If the cantenna is mounted to the side of the pole it shall be located inside a shroud of 5.5 cubic feet maximum. The width, depth, or diameter of the shroud size shall not be greater than 16" (maximum).	• Antenna shroud and any exposed remote radio heads shall be colored to match pole.	
7. Required Equipment	• Only one equipment shroud, containing all required small cell equipment, shall be installed per pole. Except, one additional equipment shroud shall be allowed per pole if the antenna is located within the second equipment shroud. Equipment shall be located such that it meets the Americans with Disabilities Act of 1990 and does not obstruct, impede, or hinder the usual pedestrian or vehicular travel way. • If applicable, only one strand-mount equipment shroud shall be installed per permit location	• All equipment shall be located internal to the equipment cabinet or recessed in the equipment cabinet to meet Utility requirements or hidden behind the cantenna. All equipment shall be mounted per the Owner's requirements. Pole bases shall be sized to handle the listed equipment and all other equipment required by the Owner.	
8. Warning Labels	Carrier shall mark equipment with warning labels if required by NEC or other regulations.		
9. Owner Identification	A 4-inch by 6-inch (maximum) plate with the Carrier's name, location identifying information, and emergency telephone number shall be permanently fixed to the equipment shroud.		
10. Luminaire	*Not Applicable*	*Not Applicable*	Luminaire shall meet South Jordan City's Construction Standards and Specifications and shall match existing luminaires adjacent to permit location.
11. Luminaire Mast Arm	*Not Applicable*	*Not Applicable*	Match mast arms on adjacent streetlights or match aesthetics of adjacent streetlights. In any case, mast arms will be decorative.
12. Pole Size & Type	*Not Applicable*	• Pole shall be architecturally compatible with the equipment cabinet and shall be round, straight, galvanized steel with black powder coating. The pole shall be fluted to match as closely as possible the architecture of the City's existing streetlight poles. • The upper pole shall be scaled to 0.5 to 0.75 times the size of the equipment cabinet with 10" minimum outer diameter. The pole diameter shall be scaled such that no flat, horizontal surface larger than 1.5 inches exists between the equipment cabinet and upper pole.	• Pole shall be architecturally compatible with the equipment cabinet and shall be round, straight, galvanized steel with black powder coating. The pole shall be fluted to match as closely as possible the architecture of the City's existing streetlight poles. At least 15% of the pole design structural capacity shall be reserved for future City IOT installations. • The upper pole shall be scaled to 0.5 to 0.75 times the size of the equipment cabinet with 10" minimum outer diameter. The pole diameter shall be scaled such that no flat, horizontal surface larger than 1.5 inches exists between the equipment cabinet and upper pole.
13. Small Cell Height	• For a utility pole attachment that is located within a right-of-way that is 60 feet wide or less and adjacent to residential – the height of the existing utility pole shall not change. • For commercial or industrial areas or residential areas (within a right-of-way greater than 60 feet wide) - If a cantenna is located on top of the utility pole, the cantenna shall be no more than 5 feet tall, including antenna, radio head, mounting bracket, and all other hardware necessary for a complete installation.	• Pole height shall not exceed 50 feet. Pole height shall be measured from the top of the foundation to the top of the cantenna. • Freestanding installations are not allowed within a right-of-way that is 60 feet wide or less and adjacent to residential.	• Pole height shall not exceed 50 feet. Pole height shall be measured from the top of the foundation to the top of the cantenna. • Freestanding installations are not allowed within a right-of-way that is 60 feet wide or less and adjacent to residential.
14. Electrical Separation	*Not Applicable*	If multiple carriers are present, separate conduits shall be provided to separate wiring by owner. An internal divider inside the structure shall separate electrical wiring and fiber, per Owner.	
15. Conduit Sweeps in Foundation	*Not Applicable*	*Not Applicable*	Conduit shall accommodate all equipment and include (4) spare 2" PVC sweeps for future service.
16. Design Wind Velocity	Withstand minimum wind speed of 115mph (3 second gust) – or as required by the City's currently adopted International Building Code.		
17. Foundation	*Not Applicable*	Precast concrete or cast-in-place pole foundations shall be designed per the City standard to meet ACI 318. While the City accepts cast-in-place foundations, precast concrete foundations are preferred and should be installed whenever possible.	

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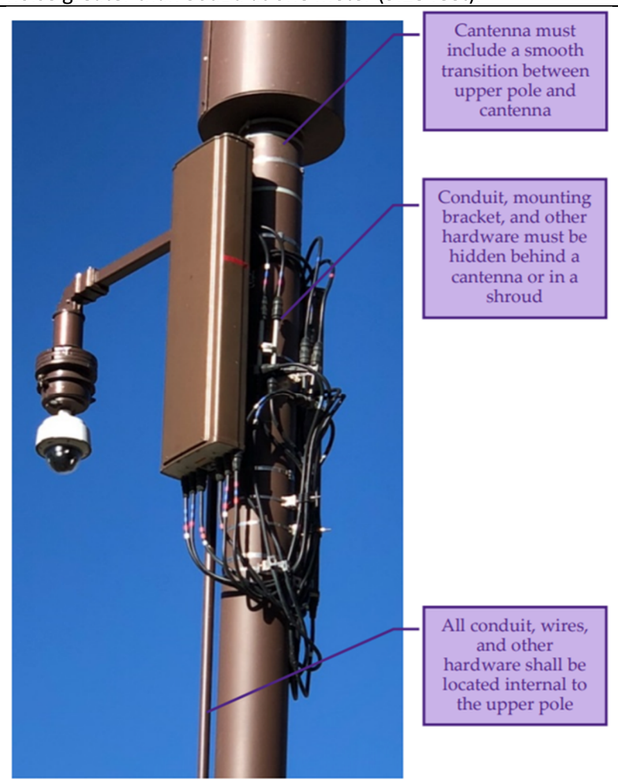
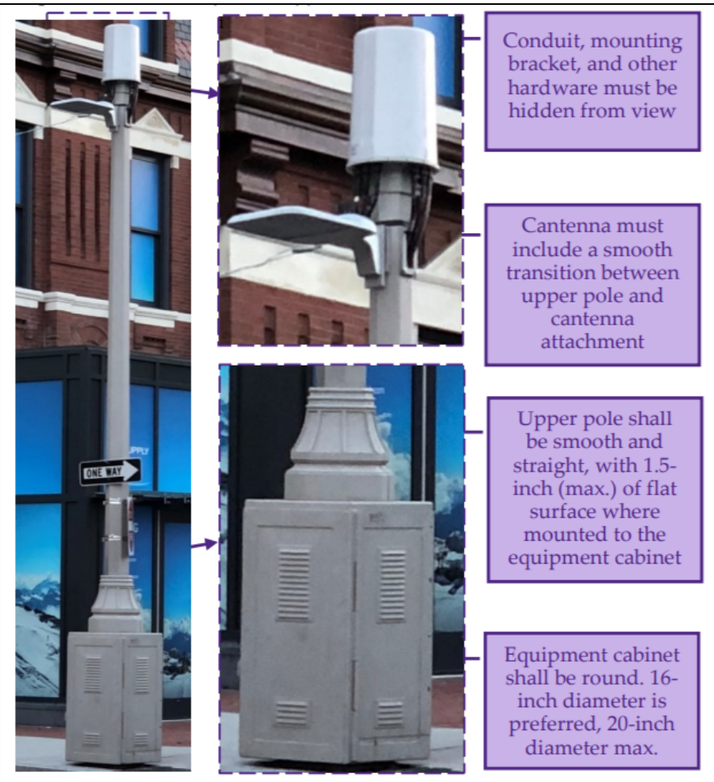
18. Bolt Circle	*Not Applicable*	19.5-inch bolt circle when installing a 16-inch equipment cabinet. 23.5-inch bolt circle when installing a 20-inch equipment cabinet. Anchor bolts shall be hidden from view.	
19. Access Doors	*Not Applicable*	Lockable doors to be provided as needed in the equipment cabinet to maintain equipment.	• Lockable doors to be provided as needed in the equipment cabinet to maintain equipment. • A hand hole shall be provided at the top and bottom of the pole to maintain electrical service for streetlights and future IOT attachments.
20. Ventilation	*Not Applicable*	Passive louvers and/or other passive ventilation systems shall be provided as the primary means of temperature control. If required, fan(s) shall not emit noise greater than 30dBa at one meter (3.28 feet).	
21. Examples of Unacceptable Installations	*Intentionally blank*		

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22. Examples of Acceptable Installations	*Intentionally blank*	  RRH for 5G Applications	

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		 With RRH for 5G Applications	