RAYCAP CASE STUDY

How Carriers, Counties and Utilities Can Collaborate to Streamline 5G Deployment

Arlington County is considered the second-largest "principal city" in the Washington D.C. area. So when Raycap was approached to design a small cell streetlight pole based on the county's specifications, we seized the opportunity. The scope of the effort grew to include not just the county, but the local electric utility and all three tier-one wireless carriers servicing the area. Roughly one year and 20 design iterations later, Arlington County now has an approved small cell pole design, engineered and delivered by Raycap.

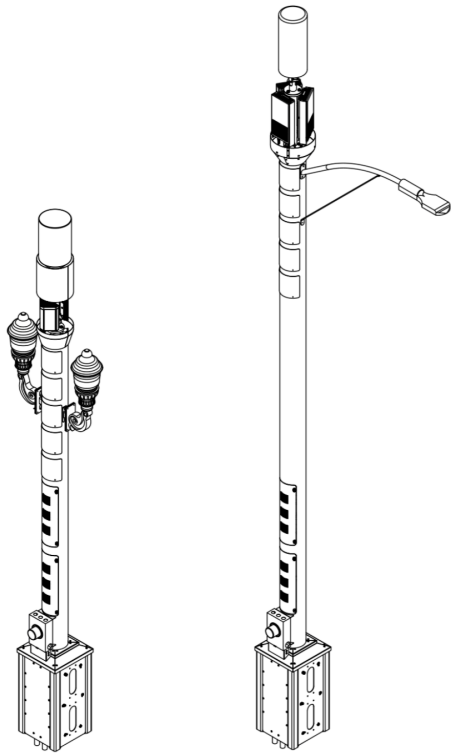


Satisfying Carrier, County and Utility Requirements

The primary challenge in receiving this bid was the engineering challenge of needing to balance the needs of all three stakeholders including:

- Wireless equipment and coverage requirements for the carriers;
- Dimensional and cosmetic specifications of the county;
- Engineering and maintenance restrictions for the power utility's equipment.

The process started out smoothly by working with Arlington County to understand and implement aesthetic goals for its small cell poles.



Raycap managed a design process that balanced carrier, county and utility needs, resulting in two design styles for all 4G/5G small cells across Arlington County.

The utility was concerned about how its technicians would be able to access the connections within the pole, run power to the site, read the power meter, and maintain service. Raycap modified the design for the utility's needs in parallel with revisions requested by the county. To gain final utility approval, we manufactured a prototype of the base of the pole that was shipped to the utility's location for testing and approval.

At the urging of the county, Raycap also engaged with the three carriers active in that region to make sure the design could accommodate their required 4G and 5G equipment and support electronics. The drawings have been approved and posted on the county's website, so the carriers know exactly what kind of integrated small cell poles to use in Arlington County.

One Design, Two Variations, Three Carriers = Six Bespoke Poles

The small cell pole drawings show two design styles for single-tenant small cell poles. The bases are the same, but the poles differ in height and lighting style. One design style is shorter and accommodates decorative luminaires, and the other is taller and uses cobra-style lighting. The two styles are necessary to match or replace existing streetlight poles across a variety of different neighborhoods.

There are three very similar configurations of each style for different carriers, which leads to six individual designs. All use the same county-specified black color finish. So from the exterior perspective, they are almost indistinguishable, but the interior design and components are customized for the specific equipment that each carrier uses.



The small cell design includes variations to mount 4G antennas and 5G radios specific to each carrier at the top of the pole.

Above the luminaries is a section for 5G radios, and at the top of the design a 4G antenna, is located and connected with coaxial cables to the radios in the base. A decorative element below the 5G radios serves to hide the cabling.

At ground level, the structural base has removable panels from two sides. They provide ease of access by technicians during installation and later for maintenance, upgrades and any other future modifications. In fact, all four sides may be fully removed for complete access. This highlights an advantage of a square base design: there's more room within the base than a circular one, and it is all accessible through removable panels.

Raycap performed a thorough review of the thermal properties of the design, including all the different configurations of equipment that the carriers want in the enclosure. To ensure operation of high-powered radios during hot Virginia summers, Raycap added six ventilation fans into the doors of the base for active cooling: three fans on one door to pull cool air in and three on the other side for venting out.



The square base design provides more room for equipment, and removable panes, than a circular one.

Prototype Approved, and Now In Installation

After nearly a year in the design phase with multiple stakeholder input, the design was ready to be realized and a prototype pole was developed for final approvals. Raycap received that approval with its first prototype; that's not unusual for us. Our recent small cell pole design for the Los Angeles Bureau of Street Lighting was also approved with its first prototype. Thorough engineering process carefully considers all requirements on the way to design review.

We built the integrated poles in our North Charleston, S.C. facility, one of three U.S. manufacturing sites and shipped the first integrated poles to one wireless carrier in September of 2020, The customer deployed and activated the poles by the end of the year. This customer may choose to ultimately deploy the small cell poles to around 200 sites across Arlington. Raycap is also getting orders from the other two carriers. The best part is, all the integrated small cell sites will look nearly identical, match the other streetlights across the county, and support high-value 5G services. That's the ultimate value of collaboration among county, utility, carrier… and Raycap.

Learn more about Raycap's solutions for small cell concealment at ***www.raycap.com*** *or* ***sales@raycap.com***

About Raycap

Raycap is a solutions provider and manufacturer of telecommunications infrastructure products for mobile and broadband networks with operations throughout Europe and North America. Raycap has a large installed base including connectivity and lightning protection solutions for telecommunications infrastructure and RF concealments. In June 2018, Raycap acquired STEALTH® Concealment Solutions, the pioneer in concealment solutions for RF antenna equipment, and in 2019 it acquired APELIO Integrated Industries, a manufacturer of custom enclosures and mounting solutions for the next generation of wireless networks. As a known and trusted vendor for Tier-1, Tier-2 & Tier-3 carriers, Raycap products can be found in a wide variety of telecom sites with more than 400,000 site installations across North America alone.

Raycap has the small cell experience, technology and the reputation for understanding customer needs and delivering the right products on-time for smooth product installation.

Talk to Raycap about integrated small cell concealment options.

Contact us today at info@raycap.com

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