



Metro Cell Services

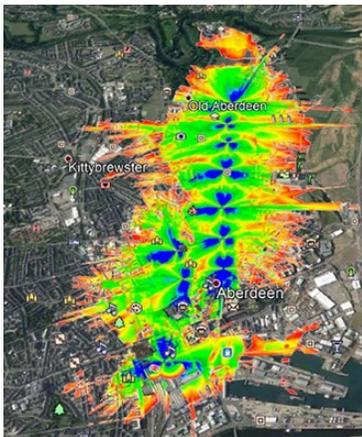
End to end services for a seamless subscriber experience in urban areas

COMMScope®

CommScope takes your small cell network from design to optimization

For over five years, CommScope has successfully delivered many turn-key projects including design, deployment, test, integration and optimization services in support of outdoor Metro Cell deployments, as well as other vendors' small cell solutions.

Many of these deployments involve using existing local authority street furniture assets, such as lighting columns, traffic signals and traffic signage. CommScope's expertise extends to successful leveraging of these assets under local authority concession.



Network design

Our engineering teams use a range of planning tools for small cell network design. These tools enable RF planning down to a one-meter resolution, while simulating external factors like the impact of macro sites and in-building penetration.

These tools enable CommScope to create an entire database of local authority assets so we can make a selection of the subset of assets that provide optimal RF performance with minimal macro layer interference and maximized traffic contribution. This provides the best cost structure by taking into account the points of presence of fiber and power.

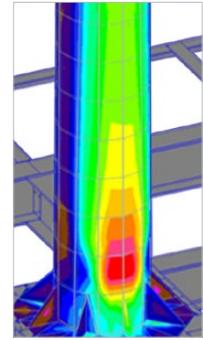


Asset selection and assessment

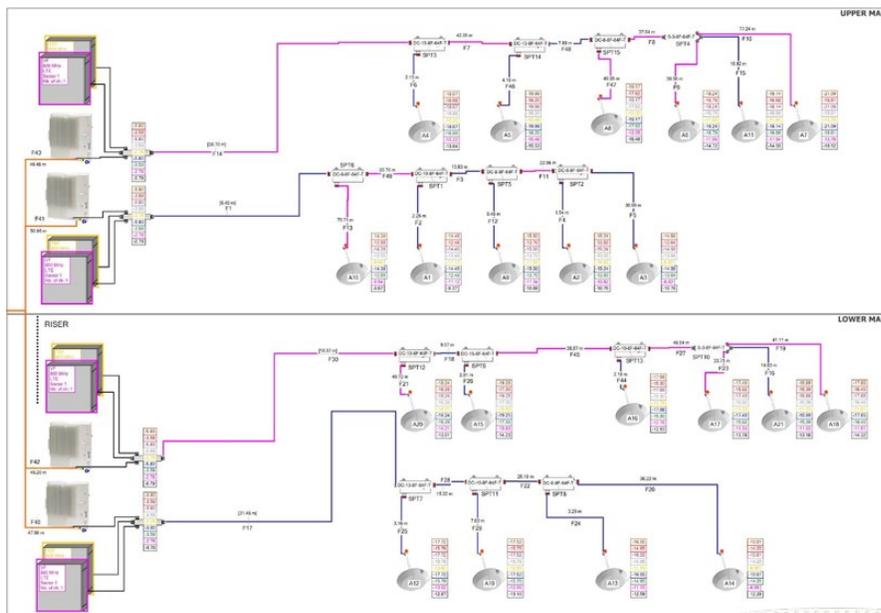
Once the subset of local authority assets has been selected by our planning tools, CommScope's teams survey each asset and work with the regulatory authority to derive precise manufacturer and structure types for each asset.

Our structural engineering teams work in parallel with the asset manufacturer's engineering teams to carry out a detailed above- and below-ground structural assessment of the asset's load capability for small cell equipment. This analysis includes the mounting hardware and cable entry and exit holes required for the deployment.

Design will proceed only when the asset manufacturer has determined the additional load to be within specification.



Outdoor DAS Design



For metro cell deployments using outdoor DAS, CommScope's engineering teams have extensive system design experience in the deployment of our ERA® digital DAS platform.

We use state-of-the-art RF planning tools to ensure robust coverage, and to generate the complete active and passive equipment bill of materials.

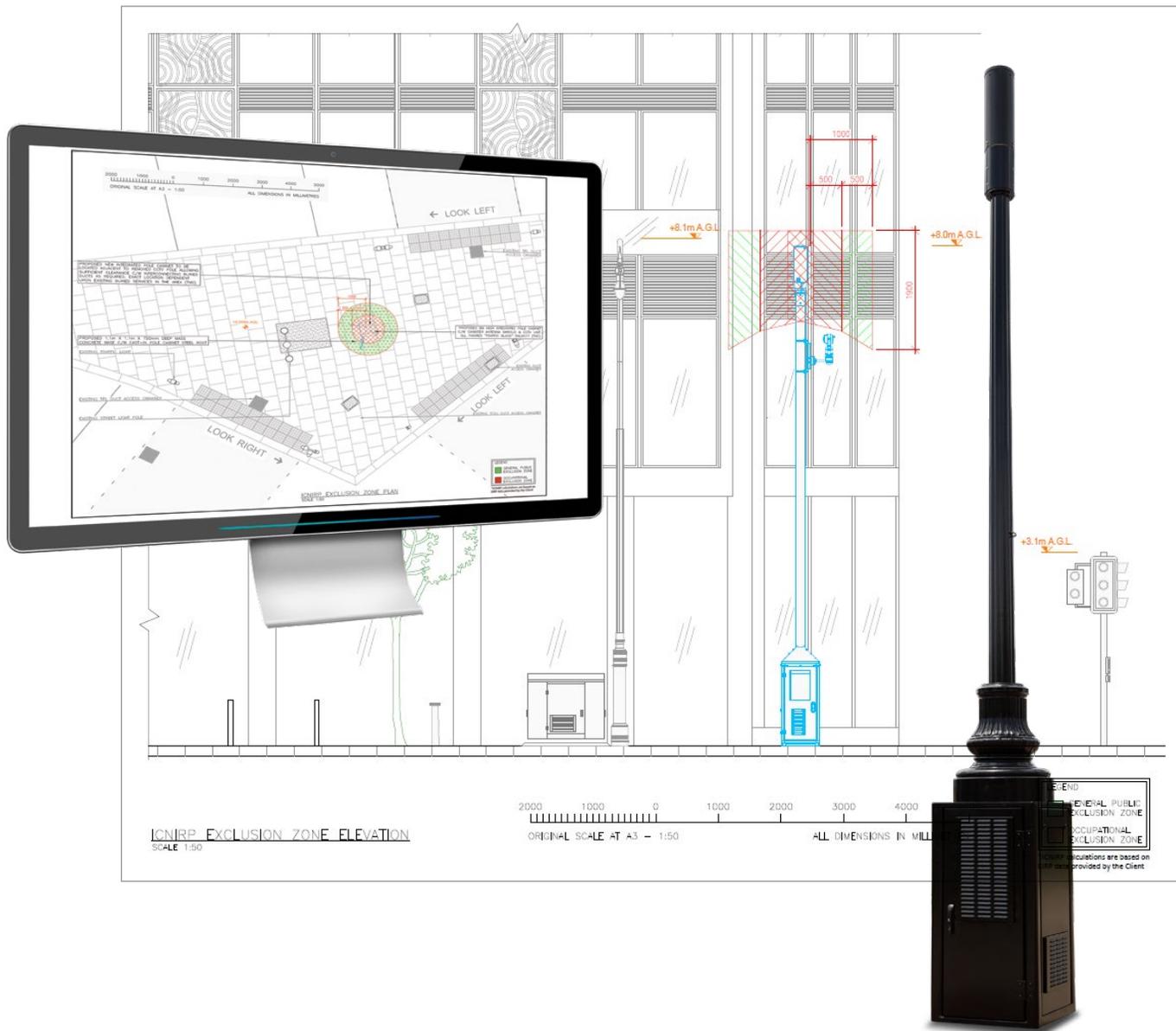


Site design

Once the RF planning, asset selection and design are complete at the initial stage, CommScope's teams perform a full location survey of each street asset and its location. This survey includes the precise location of the power and fiber connection access.

At this stage, the team may carry out a trial hole or ground-penetrating radar scan to confirm that the asset has been installed according to the manufacturer's specifications and determine the presence of any buried services.

This survey drives the generation of general arrangement and detailed design CAD drawing packs, which include International Commission on Non-Ionizing Radiation Protection (ICNIRP) safety zone calculations. These drawings are then used to drive local authority planning consents and building permits, and guide the site build itself.



Site permitting

Prior to building, CommScope's teams create a detailed pedestrian and traffic management plan and use it to secure the necessary work permits from local regulatory authorities for the appropriate dates.



Civil works

CommScope's build teams carry out all required civil works depending on the solution being implemented. This typically includes excavating and installing pre-cast street cabinet roots and trenching and ducting works to the street asset location and to the point of presence for fiber. Power connection works are coordinated with the relevant local power utility.

Site construction

CommScope's teams will then proceed to rig the antennas, small cell and Wi-Fi equipment specified in the design for the asset. This work includes cutting a cable entry slot into the asset and installing a small weatherproof cable gland.

All coaxial, RET, GPS, Category 6 and fiber cables are installed into the asset, exiting via underground duct to the required location.

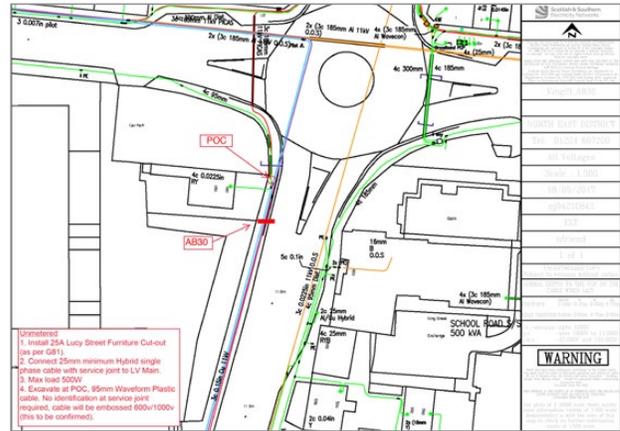
Our teams land any street cabinet required onto the installed cabinet root and run and connect cables into the cabinet.



Power

CommScope's teams work with the local electrical utility to secure an ac power connection plan for each asset, which must be independent to any lighting or other powered function already present at the asset. We then coordinate the trenching, cable installation and ac connection works with the utility.

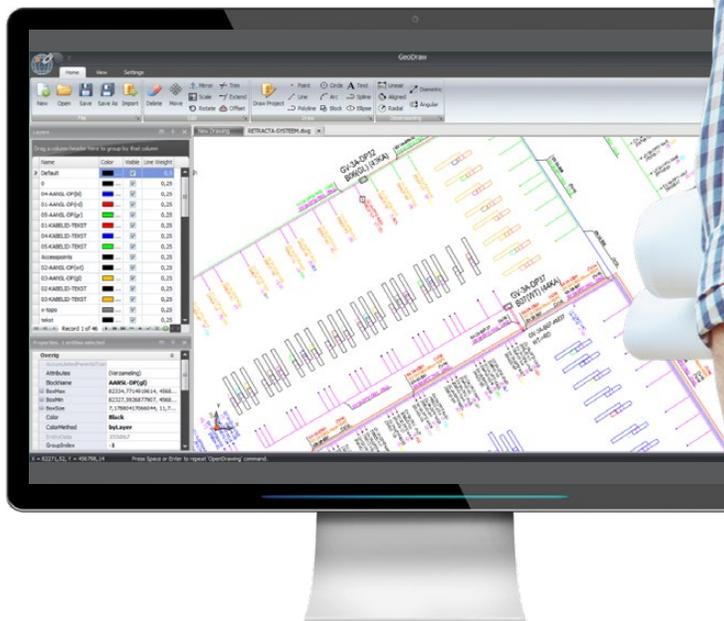
CommScope's electrical teams then connect the ac supply to the street cabinet and provide the required electrical certifications. We also work with CommScope's distributed dc power solutions, which allow a single street asset with an ac supply to feed dc power over 1 kilometer to a number of other street assets. This option can greatly reduce ac supply costs.



Fiber design and deployment

CommScope's fiber engineering design and deployment teams use the GeoStruct fiber planning tool for the design and deployment of fiber networks. We import the route maps of the available underground and above-ground cable routes and plan the dark fiber network to connect the street assets back to the chosen main equipment room (MER) locations.

Once design is complete, CommScope's teams carry out walkout and duct surveys to verify the design. Our deployment teams install the fiber cables and splice connect them at the required network locations.



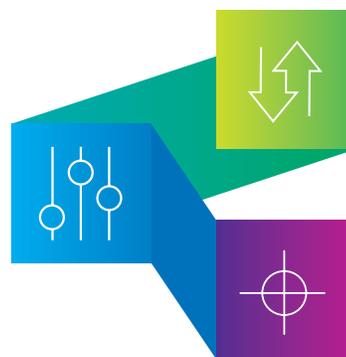


System testing and optimization

CommScope's teams carry out a comprehensive post-installation test program including RF voltage standing wave ratio (VSWR), passive intermodulation (PIM) resistivity, optical time-domain reflectometer (OTDR) and electrical testing and certification.

We carry out continuous wave (CW) coverage testing on the designated spectrum bands to confirm the coverage footprint is in line with the RF predicted coverage.

CommScope's teams are highly experienced in the installation, commissioning and integration of OEM RAN equipment. Following integration, we carry out a post-integration system performance assessment and report on the key system KPIs for each mobile network operator (MNO) across each technology and spectrum band. We can even help optimize network parameter settings to manage interference control and provide the best heterogeneous multi-layer network capacity and performance.



Please visit CommScope's [Wireless Professional Services](#) page for more information.

CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com



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