Small cell connectivity for local authorities

A guide by Small Cell Forum **PART 1**

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A practical introduction to small cells, why they matter for towns and cities, and how local authorities can support deployment.

Cover: Small cell image, credit BT and Ontix.

What are small cells?

Small cells enable better mobile network connectivity in targeted local areas.

Small cells are compact mobile base stations that improve mobile network coverage and capacity in a specific local area.

For local authorities, they are most likely to come up in discussions about reliable mobile connectivity in town centres, transport routes, visitor destinations, regeneration areas and busy public spaces.

Unlike large mobile masts, which provide wider area coverage, small cells are used in more targeted locations. They add capacity and improve coverage where the wider mobile network is under pressure, or where coverage from large masts doesn't reach.

Small cells are reasonably compact pieces of equipment that can be fitted to existing street furniture such as lighting columns and bus shelters, or to suitable buildings and other local infrastructure depending on the location, permissions, power and fibre availability.

Small cells do not replace the wider mobile network. They work alongside larger mobile masts by adding extra coverage and capacity where it is needed most. This can help businesses, residents and visitors make calls, use mobile data and access digital services more reliably in busy or poorly connected areas.

Handy to know

Wi-Fi is usually linked to a specific place, such as a home, office, café, library or public building. Users usually need to select the network, accept terms or enter a password.

Small cells are part of a mobile network. They allow people to keep using normal mobile services, including calls, texts and mobile data, as they move through public spaces.

Why deploy small cell networks in towns and cities?

Better mobile connectivity helps towns and cities work as people expect them to.

Towns and cities rely on strong mobile connectivity. It helps everyday services, businesses and public spaces work as people expect them to, from making payments and checking travel information to keeping in touch when on the move.

In busy areas, the wider mobile network can come under pressure. Large mobile masts provide important coverage across broad areas, but they cannot always provide enough capacity, quickly enough, in the exact places where demand is highest, or reach every street-level location effectively.

Small cells help by adding targeted mobile coverage and extra capacity where it is needed most. By easing pressure on the wider network, they can help mobile services feel quicker and more reliable in busy areas. This can improve the experience across the area, particularly in high streets, public spaces, transport routes, event areas and other places with high footfall.

Better mobile connectivity can also support how places operate and help local authorities deliver against a range of wider priorities:

High streets and town centres
Supports card payments, visitor experience, businesses, events and footfall.

Transport corridors
Supports journey information, operational communications and passenger connectivity.

Public services
Supports mobile working, field staff and access to digital council services.

Economic development
Improves investor confidence and supports digitally dependent businesses.

Digital inclusion
Helps residents access mobile-first services where fixed connectivity or indoor Wi-Fi is not enough.

Public safety and resilience
Supports communications and coordination in busy or disrupted environments.

Smart places
Supports sensor networks, environmental monitoring and future connected-place use cases.

For local authorities, small cells offer a practical way to support better mobile connectivity where people live, work, visit and travel.

How can small cells be deployed?

Small cells work best when deployment is coordinated around the right locations, assets and partners.

Small cells need to be placed where they can make the most difference, usually in targeted locations where mobile coverage or capacity needs extra support.

For local authorities, deployment needs to be coordinated carefully. It may involve street furniture, buildings or other local assets, along with practical considerations such as power, fibre, access and internal council processes.

Open Access Agreements can help by setting out how mobile operators or neutral hosts access council-owned street assets in a fair, consistent and non-exclusive way.

One deployment approach that can help local authorities manage this more effectively is neutral hosting.

What is a neutral host?

A neutral host is an organisation that deploys and manages shared mobile infrastructure for use by mobile network operators.

For local authorities, this can make small cell deployment easier to coordinate. Instead of several operators each needing separate street-level infrastructure in the same area, a neutral host can provide shared infrastructure that supports more than one operator.

This can make better use of public assets, such as lighting columns, buildings and other street infrastructure. It can also reduce the risk of repeated installations, limit street clutter and create a more consistent approach to deployment across a town or city.

A neutral host works with mobile network operators to understand where extra coverage or capacity is needed, then helps identify suitable locations and manage deployment. For councils, this can mean fewer separate conversations, clearer processes and a clearer view of how local assets are being used.

Neutral hosting can also support a more joined-up approach to local connectivity. It helps councils encourage investment while keeping deployment aligned with local priorities, public realm considerations and the day-to-day needs of planning, highways, lighting, estates and legal teams.

Handy to know

The best small cell locations are not always the most obvious ones. A site needs to be in the right place for mobile demand, but it also needs suitable power, fibre, ownership, access and maintenance arrangements.

How can local authorities support small cell deployment?

Small cell deployment is not just a planning matter. Local authorities can play an important role by helping identify where better connectivity is needed, making suitable public assets easier to access, creating clear routes for engagement and coordinating the council teams involved. Deployment works best when local authorities, operators and neutral hosts engage early and understand what each side needs.

Manage internal coordination

Bring the right council teams together from the start. This may include planning, highways, lighting, estates, legal, procurement, digital infrastructure and senior leadership. A clear point of contact for operators and neutral hosts, supported by a named lead, or digital champion, can help keep things moving.

Help identify priority locations

Identify where poor coverage or capacity affects residents, businesses, visitors or public services. This may include high streets, transport routes, public spaces, visitor destinations and event locations. Commissioning coverage and capacity analysis can help support the business case.

Make suitable public assets discoverable

Existing street assets, such as lighting columns, buildings, rooftops, shelters and other street infrastructure, can help support deployment. Suitability will depend on ownership, access, power, fibre, maintenance and local public realm considerations.

Provide local context

Deployment should reflect the character and needs of each place. Visual impact, heritage settings, historic urban environments, street works, sustainability and cost all need to be considered alongside connectivity benefits. For example, small cells can be painted to match street furniture.

Establish clear processes

The biggest barriers are often organisational rather than technical. Clear routes for engagement, consistent internal processes and early conversations can help reduce delay and make deployment smoother for everyone involved. Where appropriate, non-exclusive access arrangements can help keep options open and provide greater consistency for councils and deployment partners. Councils should also be clear about what they want to achieve through access to public assets, whether that is cost recovery, modest income, wider public benefit or a combination. Arrangements that are overly complex, costly or restrictive may reduce market interest and slow deployment.

Identify digital champions

Having a point of contact in your local authority that has time to learn about the technology, processes and benefits of different types of technologies is useful – these are often called Digital Champions. They can join industry events and seminars to grow their knowledge and share it with colleagues.

Putting small cell deployment into practice

For more detailed guidance on the practical steps local authorities can take, sign up now to be among the first to receive part two of our guide to small cell connectivity for local authorities.

Register here

CASE STUDY

Birmingham's city-wide neutral host small cell network

As one of the UK's largest and busiest metropolitan areas, Birmingham required a future-ready connectivity solution capable of supporting growing mobile data demand, improving coverage in high-traffic locations and enabling emerging technologies such as connected and autonomous vehicles (CAVs).

The solution

Wireless Infrastructure Group (WIG), a neutral host provider, deployed a city-wide small cell solution and secured access to thousands of Birmingham City Council-owned streetscape assets. This enabled the creation of a neutral host platform that can support multiple mobile network operators and technologies from a single infrastructure layer.

The network was initially deployed to support Three UK's 5G services, creating the UK's first large-scale 5G centralised radio access network (C-RAN). The small cell coverage solution features a future-proof, multi-operator architecture capable of supporting both standalone and non-standalone 5G deployments, while also providing the connectivity infrastructure required for Midlands Future Mobility's CAV testing programme.

The benefits

- Enhanced mobile connectivity across Birmingham with high-capacity 4G and 5G coverage from Birmingham International Airport through to the city centre.
- Faster and simpler operator deployments through WIG's neutral host model, reducing complexity for mobile operators.
- Future-ready infrastructure designed to support multiple mobile network operators, technologies and evolving 5G requirements.
- Sustainable deployment model leveraging existing street furniture and public assets to minimise disruption and maximise efficiency.
- Support for smart city innovation, including one of the UK's largest real-world testbeds for connected and autonomous vehicles.

CASE STUDY

Small cells providing connectivity for innovative driverless shuttle service in Belfast city

In 2025, BT, in collaboration with Belfast Harbour and UK Government, delivered Project Harlander – a pioneering initiative that brought Northern Ireland's first autonomous automated public shuttle service (APSS) to the Titanic Quarter of Belfast Harbour.

As part of this, BT built and managed both public and secure private 5G networks across the estate to provide a high speed and reliable mobile connectivity required to support the smart technologies connected to the autonomous vehicle.

This included utilising the harbour's CCTV infrastructure to host small cell antennas along the route. Small cells are just one part of BT's role, but they are significant because using mobile coverage from the nearby macro-network would not be sufficient for such a complex project that requires extremely stable and high-capacity connectivity for autonomous vehicles. This demonstrates how small cells can be utilised for challenging and innovative city projects now and in the future.

Delivering the small cell solution:

1. To ensure the designated route was supported by a 5G signal (for activation of the CCTV inside the bus), BT had to identity existing street furniture or assets along the route to deploy 5G/4G small cells.
2. Six CCTV columns were selected, which were owned by the Harbour authority and provided an ideal candidate due to each columns' robust design, which was able to take the weight of the small cell equipment.
3. However, due to planning restrictions, BT had to come up with a new design that meant splitting the equipment between being hosted at height and within the column base, with a new 'wrap-around' cabinet (with heated dispensing air system) – a UK first.
4. The operator also had to agree a legal licence document with the Harbour authority to ensure it obtained legal rights, which needed to be in place before it could deploy equipment on the CCTV columns.
5. The six locations were deployed within a six-month timeframe.
6. The six locations are now live – delivering both a 4G and 5G signal within the Harbour footprint, and enabling testing of the autonomous vehicles.

Join the SCF Local Authority Connectivity Group

The SCF Local Authority Connectivity Group brings local authorities and the wireless industry together to support better connectivity in towns and cities. Local authority employees can join free of charge.

The group offers local authorities the chance to understand what small cell deployment could mean in practice, learn from other councils, and share the practical challenges they are seeing on the ground.

The group is currently focused on the UK, with the aim that some outputs may also be useful for other regions in the future.

Members receive updates and can share feedback, examples and input to help shape future resources.

Join today
smallcellforum.org/local-authority-connectivity-group

Still have questions?

Visit our FAQ for answers to common questions about small cell technology and local authority deployment.

View the FAQs

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