

Comprehensive Wireless Alternative

to Fibre for **Dacorum
Council's Multi-Town**
Urban Surveillance
Network

CONNECTING YOUR WORLD

Introduction

When austerity measures forced local authorities across the UK to find smarter ways to deliver public services, Dacorum Borough Council turned to Wavesight for an innovative solution. Facing the challenge of relocating their CCTV control room and upgrading ageing analogue surveillance systems across three towns—Hemel Hempstead, Berkhamsted, and Tring—the Council needed more than just basic connectivity. They needed a future-proof wireless network solution provider that could deliver enterprise-grade performance while dramatically reducing operational costs. Working alongside ID Integrated Security, we designed and deployed a comprehensive 20km wireless network that not only replaced expensive leased fibre but opened up possibilities the Council had never considered before.

The Challenge

The project presented multiple complex requirements that needed careful coordination:

- **Forced Relocation:** The sale of Dacorum's civic centre land for redevelopment meant relocating all CCTV control room operations to a new location while maintaining continuous public safety coverage.
- **Budget Constraints:** Austerity measures demanded significant cost reductions while maintaining high-quality CCTV service levels across all three town centres.
- **Infrastructure Complexity:** Designing wireless connectivity across 20 kilometres of varied terrain, including mature trees, valleys, and urban obstacles that made traditional fibre laying costly and disruptive.
- **Future Scalability:** The tender required a robust, scalable solution capable of meeting increasing capacity demands and supporting additional services for years to come.
- **Enterprise Integration:** Seamless integration with cutting-edge storage, management, and monitoring platforms to create a truly modern IP-based surveillance system.

Our Solution

We approached this challenge with a comprehensive wireless network design that addressed every aspect of the Council's needs:

Core Network Infrastructure: At the heart of our solution, we deployed licensed Millimetre Microwave Wave STREAM+ equipment to form the backbone connecting all three towns. This point-to-point solution provided the high-capacity, low-latency connectivity essential for real-time video transmission. We implemented a redundancy topology to ensure the network could handle any single point of failure without service interruption.

Last-Mile Connectivity: For connecting individual cameras and remote DVRs, we utilised our 5GHz licence-exempt radio solutions. The overall infrastructure included more than 100 licence-exempt Wavesight Ethernet bridges providing connectivity to over 80 street CCTV camera nodes and remote DVRs. This approach delivered over 100 simultaneous CCTV streams to the new control room location.

Enterprise Storage Integration: Working with our technology partner Pivot3, we introduced their vSTAC-Watch scale-out storage solution. This wasn't just about storage—it provided a complete virtualised compute and storage foundation that reduced power consumption and costs by up to 40% compared to traditional architectures. The VMware ESXi integration allowed for server virtualisation, maximising hardware resource utilisation while providing enterprise-grade redundancy.

Unified Security Management: We selected Genetec's Security Centre platform to provide a single interface for all surveillance operations. This unified platform brings together CCTV, access control, ANPR, dynamic mapping, and remote DVR management through Federation features. A crucial factor in this selection was compatibility with Hertfordshire Police's existing Genetec infrastructure, enabling seamless live feed sharing.

Professional Services: Our team provided end-to-end support including RF site surveys, detailed network design, installation, commissioning, and comprehensive training for the Council's operators and ID Integrated Security's engineers.

As George McDonald, our System Integration Consultant, explained: "This was a very challenging project for wireless deployment predominantly due to the nature of the land and the large volume of mature trees throughout the borough. We had to deploy a radio mast at the new control room location and employ an additional third-party radio mast to achieve connectivity across a large valley to reach the other two towns. Access delays to key buildings meant multiple design iterations, but we're extremely pleased that Wavesight, the SI, and the client worked together to find workable solutions for all sites despite the challenges."

Results & Benefits

The transformation delivered outcomes that exceeded expectations:

Cost-Effective Ownership: Dacorum Council now owns a dedicated, highly secure private WLAN infrastructure that provides equivalent leased fibre image quality while eliminating ongoing operational expenses. The wireless approach avoided costly civil works, planning permissions, and lengthy deployment timelines typical of traditional leased network infrastructure.

Enhanced Service Capabilities: The flexible wireless infrastructure immediately enabled additional services beyond core CCTV delivery. We integrated bi-directional audio for town help points into the IP network and provided third-party remote DVR access on demand. The Council is already planning centralised ANPR and access control services through the same network.

Future-Proof Scalability: The network architecture supports rapid growth with minimal additional investment. Adding new cameras or services can be accomplished quickly without the planning, civil works, and costs associated with traditional fibre connections.

Enterprise-Grade Performance: The combination of Pivot3's virtualised storage and Genetec's unified management platform provides the Council with capabilities typically found in much larger surveillance operations. The system supports seamless scaling, advanced analytics integration, and sophisticated multi-site management.

Strategic Flexibility: As George McDonald noted: "The core network infrastructure solution is designed with reliability and growth in mind. We're confident this solution will provide Dacorum with the ability to scale the system as demands increase and fully leverage wireless network flexibility over the next five to ten years."

Conclusion

This project demonstrates Wavesight's capabilities as a comprehensive wireless network solution provider, delivering not just connectivity but complete transformation of public safety operations. By combining our wireless expertise with strategic technology partnerships, we helped Dacorum Borough Council achieve a modern, flexible, and cost-effective surveillance infrastructure that positions them perfectly for future digital evolution.

The success of this deployment shows how the right wireless solution can turn budget constraints into opportunities for innovation and improved service delivery.