



# PIERCE COUNTY CASE STUDY

## Case Study:

### Providing Seamless Communications with Fiber DAS at Pierce County's Jail Complex

#### CLIENT BACKGROUND:

Pierce County, located in the state of Washington, has invested in a state-of-the-art 700 MHz Project 25 (P25) Land Mobile Radio (LMR) system, which serves as the backbone of its countywide radio communications network. This P25 system, designed to meet the rigorous standards of public safety operations, provides interoperable voice and data communications for law enforcement, fire departments, emergency medical services, and other first responders throughout the county. With its advanced features, including encryption, over-the-air rekeying, and robust coverage, the countywide radio system plays a crucial role in enabling seamless coordination and response during emergencies, critical incidents, and daily operations, ultimately enhancing the safety and well-being of the community.

#### THE CHALLENGE:

Pierce County, Washington, manages a large interconnected complex of buildings that houses multiple jail facilities, courts, and administrative offices. The existing on-premise UHF radio system used for communication throughout the complex was aging and faced several issues, including coverage gaps in certain areas and limited interoperability with the new countywide 700 MHz Project 25 (P25) Land Mobile Radio (LMR) system. Reliable and seamless communication within the complex was crucial, especially in the corrections portions of the facility.



## THE SOLUTION:

Commdux developed a design for a fiber-based distributed antenna system (DAS) to provide comprehensive coverage throughout the complex tailored to Pierce County's needs. The project encompassed the following key components:



### Complete Coverage Design:

Utilizing industry-standard tools such as iBwave, Commdux developed a detailed 3D model of each area within the complex to optimize indoor coverage. The design incorporated new 700 MHz frequencies, necessitating strategic antenna placement and redundant coverage to mitigate potential failures.



### Redundant Design:

Recognizing the criticality of coverage within correctional facilities, Commdux designed a redundant system to ensure uninterrupted communication. Duplicated DAS headend functions and strategically placed remotes and antennas ensured that no single failure could disable coverage in more than 30% of the complex.



### Installation Management:

Commdux mobilized experienced DAS Field Engineers to oversee the installation and commissioning process. Stringent adherence to installation best practices, including Motorola R56 standards, ensured the proper deployment of equipment and systems.



### System Testing:

Following the approved installation and configuration, Commdux conducted comprehensive RF coverage testing across each building. This testing, aligned with industry standards (TIA TSB-88), validated the predicted coverage from the iBwave design, ensuring optimal signal strength throughout.



### System Monitoring and Administration:

Commdux integrated the DAS into an SNMP management system, enabling efficient fault management and system administration. Collaboration with the client ensured compliance with IT requirements and the proper configuration of alarms and controls.



### Training:

Commdux provided thorough on-site training for operations and maintenance personnel, supplemented by online training documentation for future reference. This comprehensive training ensured that staff were proficient in system configuration and management.

## Results:

Commdux's turnkey solution provided seamless and reliable communications throughout the entire Pierce County jail complex. The new 700 MHz on-premise radio system, coupled with the fiber-based DAS, ensured comprehensive coverage and direct interoperability with the countywide radio system users. The redundant design and additional safety measures ensured that communication within the critical corrections portions of the facility would not be substantially disrupted in case of equipment failure.

