

Abbotsford Law Courts: Cellular Distributed Antenna System

CASE STUDY



CUSTOMER

To accommodate the rapid growth of the Lower Fraser Valley, one of British Columbia's fastest-growing regions, the Province of British Columbia invested \$150 million in the construction of the new Abbotsford Law Courts (ALC). This state-of-the-art facility, which opened in 2021, serves as a key judicial hub, housing both the Provincial Court of BC and the Supreme Court of BC. Spanning 16,723 square meters, ALC features 14 courtrooms—eight for the Provincial Court, three for the Supreme Court, and three for judicial conferences. The facility also includes a basement, a 336-stall parkade, and LEED Gold certification.

CHALLENGE

Cartel was hired after the construction of the ALC building was completed because the customer determined that they only had cellular coverage for one Canadian wireless operator. Subcontracted by Plenary Group and Johnson Controls, Cartel was tasked with designing, supplying, installing, and commissioning a cellular DAS to provide coverage for a second Canadian wireless carrier, with the scalability and flexibility to support additional carriers in the future.

Additionally, Cartel observed that the building was constructed with materials such as concrete and Low-E glass throughout—these materials block cellular signal levels, resulting in virtually no signal to make calls, making it crucial to integrate a solution that met both technological and environmental standards. This became even more complicated in unique areas of the building where there are anti-ligature considerations as well as additional material reinforcement that causes further signal attenuation.

AT A GLANCE

Customer

- Province of British Columbia

Building

- Abbotsford Law Courts

Location

- Abbotsford, British Columbia

Market

- Government

Project Duration

- 2022 - 2023; Ongoing SLA

Challenge

- Only had cellular coverage for one Canadian wireless carrier

Solution

- Designed, supplied, installed, and commissioned a fibre-fed digital active cellular DAS that provides coverage for another major Canadian wireless carrier, with scalability to support more in the future.
- Service support through 3-year SLA with extended warranty

SOLUTION

Cartel engineered and deployed a high-performance, fibre-fed, digital DAS to deliver reliable cellular coverage across all levels of the Abbotsford Law Courts. The project began with a comprehensive RF assessment, during which a pre-installation coverage validation survey was conducted across all seven levels of the facility, including courtrooms, basement areas, and parking structures, to identify the current conditions and materials characteristics. Based on these findings, Cartel implemented a BTI Wireless CrossFire DAS, an advanced active, fibre-fed, digital cellular system designed to ensure seamless connectivity throughout the entire courthouse.

To support the system, Cartel installed 60 BTI N2RU active antennas strategically placed throughout the building, basement, and parkade. The deployment also included 3,500 meters of Corning composite fibre cabling, ensuring a strong and scalable connectivity infrastructure. The fibre-fed architecture eliminated the need for an external donor antenna or off-air repeaters, enhanced system capacity, respected the wireless operator guidance, and reduced the potential impacts of the existing outdoor macro coverage. The DAS was designed to support one major Canadian wireless provider's frequencies, including 850 MHz, 1900 MHz, 2100 MHz, and 2600 MHz and is also capable of onboarding additional carriers when required.

As part of the commissioning process, Cartel performed a post-installation coverage validation survey to confirm that the system met performance expectations. Pre- and post-installation heat maps were generated to visually verify enhanced coverage distribution. Final testing confirmed that over 95% of the facility achieved the required cellular performance standards. To ensure ongoing support and reliability, Cartel provided a three-year Service Level Agreement (SLA), including an extended warranty, and delivered a comprehensive closeout package with a detailed commissioning report, system performance metrics, and validation results.



TECHNICAL SOLUTION OVERVIEW



BTI Wireless CrossFire Digital DAS



60 BTI Wireless Active Antennas



3,500 metres Corning Composite Fibre



Frequency bands supported:
850, 1900, 2100, and 2600 MHz

Like ALC, Cartel has extensive experience delivering wireless enhancement solutions for government agencies across Canada. By leveraging advanced technology and industry expertise, Cartel ensures seamless connectivity that meets operational, regulatory, and user demands. If your government facility requires reliable in-building cellular or public safety wireless coverage enhancement, contact Cartel today to discuss a tailored solution that enhances communication and operational efficiency.

Need a cellular or public safety DAS?

Contact us today

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