

WMATA

Washington Metropolitan Area Transit Authority:
Keeping the emergency services connected

COBHAM

Case Study

The most important thing will build is trust

Overview

Cobham Wireless has an ongoing working relationship with the Washington Metro Area Transit Authority to provide and maintain radio communication coverage to the whole transportation system.

Challenge

To install a system that is reliable and seamless across many different environments including underground, metro stations and tunnels. The system also needs to be future-proof to allow for expansion.



The Challenge

The Washington Metropolitan Area Transit Authority (WMATA) was created by an interstate compact in 1967 to “plan, develop, build, finance, and operate a balanced regional transportation system in the national capital area”. The Metrorail system currently serves 86 stations and has 106 miles of track and, combined with Metrobus, serves a population of 5 million within a 1,500 square mile jurisdiction. The Metrorail system will eventually connect the region’s two main airports (Dulles International and Reagan National) with the new Silver Line currently under construction.

WMATA operates a Comprehensive Radio Communication System (CRCS) in the 490MHz band to service this large network. There is also the need for providing 800MHz radio coverage for 1st responders for Arlington County. This means having to ensure radio coverage in various challenging environments including underground in the metro tunnels and stations, and above ground in the various parking garages and stock yards owned and run by the authority.

Cobham Wireless has had the benefit of working closely with WMATA, being called in to support their local DC System Integrator partners to solve some of these radio coverage challenges. Since 2005 Cobham Wireless has been working closely with the authority to support the on-going augmentations and retrofits to the legacy coverage systems by offering key design support and supplying the equipment required to make this happen.

The Solution

Cobham Wireless has been able to utilize its vast global experience in Metro Solutions to provide support to our System Integrator partners on these project requirements.

Cobham Wireless was able to provide product and engineering support in the following key areas.

- 490MHz line amplifiers to replace current obsolete units
- Outdoor channelized repeaters using state of the art digital signal processing (DSP) technology for the in-fill coverage in the parking garages and stock yards
- Redundant head-end for the 490MHz/800MHz systems, incorporating a DSP filtering technology ‘noise gating’ system, allowing for the balancing and improvement of noise levels generated from the legacy fiber optic remote system. Consequently improving the dynamic range of radio coverage from below ground to above ground. This ‘gating’ is done by allowing channel modules to activate on a pre-defined squelch level, resulting in decreased overall noise levels and better performance on the system
- Fiber optic fed repeaters for coverage of the stations along the new Dulles



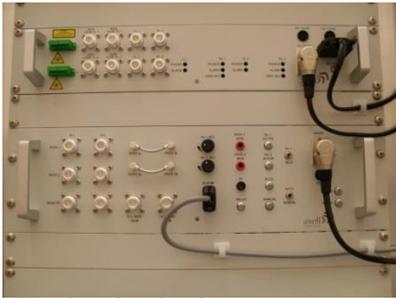
- Corridor network as well as 800MHz coverage for the legacy 800MHz FO system
- All of the above systems offer high 'mean time between failures' (MTBF) performance thereby ensuring and supporting WMATA's system reliability and performance

The Benefit

With an increased focus on safety for travellers and passengers in recent years not only in the US but globally, ensuring a secure and reliable public safety communications systems was vital for this project. Constant upgrades and improvements to legacy kit are necessary to keep passengers and staff protected.

The WMATA benefits from a leading-edge communications system that will provide public safety services with the means to communicate with each other in a secure and reliable fashion.

The improvements made mean that the communications system is increasingly flexible and future-proofed against technology upgrades and changes – and with the speed at which technology evolves nowadays, this is no mean feat. The authority benefits from Cobham Wireless equipment that has a global reputation for being of the highest quality, while being dependable and reliable in terms of its performance out in the field. Cobham Wireless' communication equipment will continue to serve the emergency services and the passengers of Washington for a long time to come.



Head-end redundancy

