

MARTA

CHALLENGE

Upgrade communications network with a state-of-the-art, flexible, scalable solution designed for transit systems and freight railroads.

Use NFPA-130-compliant products without impacting service, closing tracks or sacrificing worker safety.

SOLUTION

Installed a Distributed Antenna System (DAS) using a jetted fiber optic cable solution with AFL's 144-fiber NFPA-130-compliant MicroCore® fiber optic cable that was air-jetted into Dura-Line's NFPA-130-compliant FuturePath® MicroDuct.

RESULTS

Installed fiber infrastructure along a one-mile-route encompassing three of the busiest MARTA rail stations.

Safely installed during commuter rush hour without closing tracks or affecting service.

Created opportunity for future network upgrades with advanced systems such as DAS and SCADA.

CHALLENGE

The Metro Atlanta Rail Transit Authority (MARTA) provides rail and bus transportation service to people throughout Atlanta, GA, and surrounding cities. MARTA operates 388 rail cars to 38 stations and more than 550 buses along 1,439 miles of road on 101 routes. Their five busiest stations are in downtown Atlanta and at Hartsfield-Jackson International Airport.

More than 500,000 people use MARTA every day with riders using smart phones on their commute. With a vision to put its riders first and improve services to meet the needs of a growing city, MARTA planned to upgrade their system-wide fiber infrastructure with a solution to support the increased network and cellular traffic plus allow for future expansion.

MARTA was seeking a solution that would not impact operations but ensure worker safety. The solution also had to be NFPA-130 Transit Code compliant which specifies fire protection and life safety requirements for underground, surface and elevated fixed guideway transit and passenger rail systems. Additionally, worker safety had to take precedence over any installation or maintenance procedure.

SOLUTION

Scheduling "Wayside Track Time" has always been a costly, but necessary, practice for commuter rail systems to run communications cabling along tracks for connections to Traction Power SubStation (TPSS) and Train Control Room (TCR) applications to control centers and commuter stations throughout their network. It was this costly mass-transit-industry practice that AFL and Dura-Line wanted to change for the better.

AFL and Dura-Line approached MARTA with an alternative solution that provides major labor-cost savings and reduction of wayside track downtime. This particular system is a first-of-its-kind NFPA-130-compliant, rail tunnel solution developed jointly by AFL and Dura-Line, which implements AFL's high-fiber count Indoor/Outdoor Low Smoke MicroCore® Cable that is air-jetted through Dura-Line's MicroDuct pathway. The air-jetting procedure is unique as it does not require a lot of space for setup and can be safely installed anywhere, in any environment.



MARTA, realizing that this technology immediately solved their ongoing issues of track downtime, track maintenance efficiency and worker safety, readily adopted this new approach. It also worked with their future plans for track-based communication needs including Distributed Antenna Systems (DAS) and Supervisory Control and Data Acquisition (SCADA).

AFL, in partnership with Dura-Line, worked with Atlanta-based Cleveland Electric to provide the system-wide DAS upgrade for MARTA. The first of many planned phases consisted of placing trackside Dura-Line's NFPA-130-compliant, 7-Way MicroDucts from the Garnett commuter station to the Five Points and Peachtree Center stations—a distance of just under one mile. The next step was to air-jet, platform-to-platform, AFL's new LMZ-Series Indoor/Outdoor MicroCore 144-fiber, NFPA-130 compliant, fiber optic cable.

TUNNEL APPLICATION COMPONENTS USED:

AFL

- ▶ Indoor/Outdoor MicroCore® 144-fiber, NFPA-130 compliant fiber optic cable



Dura-Line

- ▶ NFPA-130 compliant FuturePath® MicroDuct, 7-way



The jetted fiber optic cable system works by feeding the LMZ-Series cable into a pneumatically-driven jetting unit that is connected to a duct with a one-way air valve. While the jetting unit continually pushes the fiber optic cable into the duct, a clean, dry stable, high-pressure air source (such as nitrogen, bottled air or compressed air) is introduced to the pathway through the one-way air valve which propels the cable through thousands of feet of intricate ductwork. Such distances are possible due to the high air drag and low friction generated by the cables.

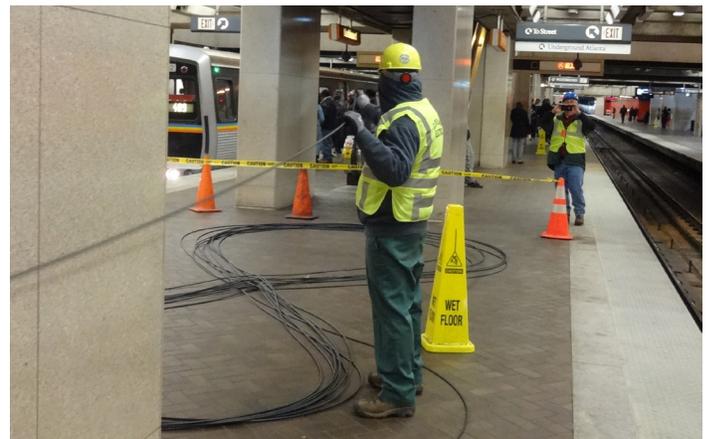
▶ RESULTS

During the first phase, MARTA realized that the jetted fiber optic cable solution was fast, easy and did not impact their operations after the duct was installed. The installation was safely completed in record time—during commuter rush hour—and did not require workers to be wayside causing delays in the commuter rail schedule. Additionally, a High Density Polyethylene (HDPE) pathway will be used for future non-tunnel routing to ensure maximum protection of the fiber optic cables and simplify cable repairs or replacement.

MARTA has standardized the use of jetted fiber optic micro-technology as their primary track communications solution. The DAS upgrade—implemented by InSite Wireless Group and installed by Cleveland Electric—provided MARTA with an improved network with stronger signals and greater capacity which benefits the more than 500,000 daily MARTA riders. It also supports MARTA's plans for future expansion with advanced control and data systems.

“Once AFL and Dura-Line presented the jetted fiber optic cable solution trackside, we were impressed that the fiber cable could be safely installed during normal business hours and did not require closing tracks that would inconvenience riders.”

– Carlos Ortega, Manager, Design Industrial Systems
MARTA



▶ ABOUT AFL

Founded in 1984, AFL is an international manufacturer providing end-to-end solutions to the energy, service provider, enterprise and industrial markets as well as several emerging markets. The company's products are in use in over 130 countries and include fiber optic cable and hardware, transmission and substation accessories, outside plant equipment, connectivity, test and inspection equipment, fusion splicers and training. AFL also offers a wide variety of services supporting data center, enterprise, wireless and outside plant applications. For more information, visit www.AFLglobal.com.

▶ ABOUT DURA-LINE

Dura-Line is a leading international manufacturer of communication and energy infrastructure products and systems including conduit and accessories designed to provide protection and fast, safe installation of communication networks. Dura-Line is headquartered in Knoxville, TN. For more information, visit www.duraline.com.