

What is the Multi-Agency Radio Communication System?

The Multi-Agency Radio Communication System (MARCS) is Ohio's wireless, digital communication network for first responders, providing fiber optic and microwave technology that enables State, local, and federal agencies to communicate instantly with one another during public safety events.

MARCS is recognized nationally as a premier public safety two-way radio communication system.

Mission

To provide a state-of-the-art communication system and to promote interoperability to save lives and maximize effectiveness in both **normal operations and emergency situations.**

MARCS Steering Committee

MARCS is governed by the MARCS Steering Committee, a stakeholder-driven body with representation from State and local government agencies. The MARCS Program Office is overseen by the Ohio Department of Administrative Services' Office of Information Technology.



MARCS Program Office

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08/2022



MULTI-AGENCY RADIO COMMUNICATION SYSTEM

Ohio's wireless, digital communication network for first responders



The System

MARCS operates on a statewide platform capable of serving all first responders in Ohio.

- MARCS must operate at all times and under all weather conditions. The use of microwave and fiber optic technology allows the system to remain connected. Using multiple network connections provides redundancy to minimize the risk of an outage.
- More than 360 towers located throughout Ohio provide the infrastructure for connectivity to the MARCS system.
- System Components:
 - Mobile Voice – operating on the 700/800 MHz digital trunked technology
 - Mobile Data – allowing data transmissions, Law Enforcement Automated Data (LEADS) inquiries, reformatting of data from mobile data terminals (MDT)
 - Computer-Aided Dispatch – providing GPS-based auto vehicle location, resource recommendation, and display
- Reliability, Performance, and Usage
 - Mobile Coverage – 99.71 percent
 - Grade of Service – 99.5 percent
 - Minutes of Airtime – More than 4 million minutes each month
 - Successful Push-to-talk Attempts – More than 50 million each month



Participants

More than 3,000 public safety/public service agencies participate in MARCS.

- More than 140,000 radios and more than 1,800 unit-computers are on the system.
- Users make a capital investment in equipment for radios and in-car computers. Many agencies seek grant funding to cover some or all of these costs.
- Low monthly subscription fees for radios, computer-aided dispatch, and mobile computer terminals.
- Local agencies have the ability to tailor the functionality of their radios to best fit their specific operational needs.

Towers on Wheels

Three 80-foot “Towers on Wheels” can be requested for events or emergencies requiring increased coverage and capacity for interoperable communications.



Operations

The MARCS Program Office is responsible for the oversight, maintenance, and repair of the MARCS network. The network operations center operates 24x7. The MARCS Program Office provides free assistance with ordering equipment to best suit each organization’s needs through a discounted state term contract, programming new radios, and training staff.

Background

The need for a modernized first-responder communication system was made apparent by the 1990 Shadyside flood and the 1993 Lucasville prison riot. These events revealed gaping holes in communication through existing radio systems, affecting the ability of emergency personnel to coordinate efforts during emergencies. Following these events, the Ohio General Assembly authorized the development of what was to become MARCS. Construction began in 2000.

In 2013 the state embarked on a \$90 million upgrade because the system had reached its service capacity. The upgrade was completed in July 2015, a year ahead of schedule and \$10 million under budget.

This upgrade provides Ohio with an Internet-protocol based, integrated system with the coverage and capacity to provide voice and data service for up to 256,000 devices in the state, saving localities the millions of dollars that would have been required to modernize and maintain their communication systems. The upgraded MARCS platform was developed with a lifecycle that will keep it viable through 2039.

MARCS in Schools Radios

A special MARCS radio was developed specifically for schools through a collaboration among school officials, law enforcement and the MARCS Program Office. The specially designed radio has an easy-to-operate emergency button, which when pressed, sends an alert to the appropriate law enforcement dispatch center. In addition, there is a paddle microphone attached which can be used for voice communications during an emergency.

Broadband Connectivity

A side benefit of MARCS towers is they provide the infrastructure for the private sector to extend cell phone and internet services to underserved areas of the state, such as southeastern Ohio.

