"This facility is a crown jewel among EOCs that dramatically improves PEMA's operational and administrative capabilities, both day to day and during emergencies."

Richard D. Flinn, Jr., Director, PEMA

Client Success Story: Pennsylvania Emergency Management Agency

AT A GLANCE

Location:
Pennsylvania Emergency Management Agency

Challenge:
Lack of space and age prevented the agency from serving the needs of a statewide EOC and limited their ability to introduce new technology and replace aging systems.

Solution:
A new state-of-the-art, 132,448-square-foot facility and a 22,985 ancillary building.

Results:
Dramatically enhanced operational and administrative capabilities and fully redundant and resilient power, water, HVAC and telecommunications/broadband completed under budget.

State-of-the-art headquarters is a crowning achievement delivered under budget

Background

PEMA is a cabinet-level agency that is tasked with coordinating prevention, preparedness, response and recovery activities related to natural and manmade emergencies in the Commonwealth of Pennsylvania. The organization supports the state's emergency management agencies, acting as a liaison with federal and state partners, volunteer organizations, the private-sector business community and the 12.8 million residents of the state.

PEMA's Commonwealth Resource Coordination Center (CRCC) is a statewide emergency operations center (EOC) that is activated during large multijurisdictional events, including unplanned events such as natural disasters, weather emergencies and terrorist attacks, and planned events.

The Need

PEMA's headquarters facility in Susquehanna Township, a suburb located near the state capital of Harrisburg, was a leased building that was not designed originally for this purpose. This hampered the agency's operations in numerous ways. In addition, the building was antiquated and severely space constrained. The space constraints were problematic whenever the EOC was activated and representatives from local, state and federal agencies descended upon the building.

Arguably the bigger issue, however, was that the lack of space prevented PEMA from introducing new technology and from scaling its operations in response to the ever-changing emergency response environment. This was especially problematic because many of the facility's systems were aging, and some needed to be replaced.

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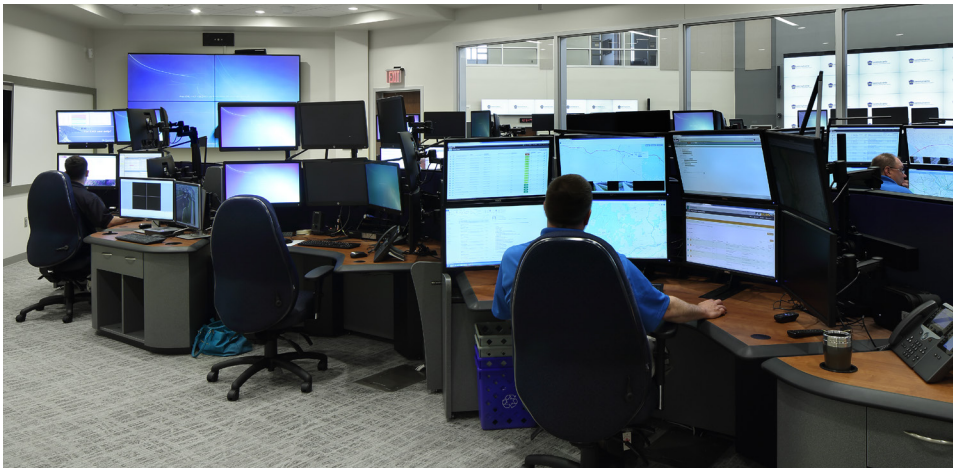

The facility provides office space for all PEMA administrative departments and partner agencies, and dedicated emergency services and disaster assistance for the state, with the ability to sustain uninterrupted operations during activations.

Keys to project success

- An in-depth understanding of PEMA's operational mission
- Frequent communication rhythms to ensure alignment over six years
- A facility fully prepared to mitigate and lessen the impact of risk
- Technology for today's emergency response needs and tomorrow's
- Specialized expertise that saved implementation costs

The Solution

A decision was made in 2006 to design and build a new state-of-the-art headquarters building that not only would house PEMA, but also the State Fire Marshall, the Office of Homeland Security, the CRCC and the Pennsylvania Department of Transportation (PennDOT) Statewide Traffic Management Center, to better coordinate planning, response and recovery activities related to manmade and natural emergencies, particularly large-scale disasters. The project kicked-off in 2010.

SCHRADERGROUP architecture and Mission Critical Partners (MCP) collaborated with the Department of General Services and PEMA to plan and design a new EOC with a vision of not only creating a facility that supports PEMA's emergency response needs today, but also for many years in the future as technology advancements and population growth occurs. The Commonwealth also wanted to design a facility that achieved, at a minimum, a Leadership in Energy and Environmental Design (LEED)-certified rating.

MCP's primary role on the project was to plan, design and project manage the implementation of the underlying Internet Protocol (IP)-based, broadband-enabled network infrastructure, as well as all the various communications systems. MCP also designed several building IT and network systems that were not communications oriented.

As the project unfolded over the ensuing six years, MCP found numerous opportunities to leverage its unique subject-matter expertise on behalf of PEMA.

In-depth understanding of PEMA's operational mission

Because they've supported more than 60 percent of the counties across the Commonwealth and have a long-standing relationship with PEMA, MCP subject-matter experts have deep insight into the public safety environment—this helped the firm to fully understand PEMA's operational mission, and how the new facility needed to be planned and designed to meet that mission.

Frequent communication rhythms to ensure alignment over six years and three administrative changes

MCP and PEMA had regular weekly "all-hands" meetings to ensure alignment throughout the project and represented PEMA's interests with contractors and vendors. MCP oversaw and communicated with a plethora of vendors and contractors involved in the communications

technology components of the facility. This saved time for PEMA and enabled them to focus on delivering their mission.

Given the project's timeframe of six years, planning, design and construction work ensued over three administration changes at PEMA and there were many different ideas about the facility's requirements and capabilities. MCP integrated and adapted to the operational, technical and executive visions of three distinct administrations, which was essential to the project's successful completion.

MCP provided specialized network expertise that simplified the network security approach and saved implementation costs between 30 and 40 percent.

A facility prepared to mitigate and lessen the impact of risk

At the beginning of the project, SCHRADERGROUP and MCP met with PEMA officials and conducted a detailed hazard vulnerability assessment to identify potential risks the facility could encounter given its location. Among the risks considered were a variety of natural and human caused events that could impact the facility and its operational capabilities. This assessment was an important factor in defining the design and construction parameters for the building and helped to eliminate or reduce risks, or lessen their impact should they occur.

Technology that meets today's emergency communications needs and tomorrow's

MCP experts were tasked with developing a migration plan PEMA, MCP and the Office of Administration and Office of Technology, regarding which systems and equipment would move from the original facility to the new building, and which needed to be upgraded or replaced. MCP then developed a procurement strategy for the new systems and equipment.

In doing all of this, MCP leveraged its deep knowledge of PEMA's operational requirements and blended this with current public safety communications technology, as well as its forward-looking insight into technology evolution. This meant that the selected solutions would meet PEMA's needs today and well into the future.

Specialized expertise that saved implementation costs while simplifying the network approach

At one point, two distinct physical networks were considered, an exclusive one for agency personnel, and another that would be utilized by other agencies during an emergency activation. A detailed feasibility analysis determined that such a scenario would have complicated network security and increased implementation costs between 30 percent and 40 percent, as two separate sets of switches, cabling, wireless access points, punch-down ports and other gear would have to be installed.

Working with PEMA, MCP developed an alternate strategy that leveraged "logical segmentation" of a single physical network. With this approach the user sees a separate, distinct and self-contained physical network, which is a segment of the larger network.

Due to technology advances and changes from the original facility's programming, a thousand additional cable runs were needed to support the facility. This was problematic on one level because the project build-out already had moved beyond this phase. However, the far bigger concern centered on whether the cabinets would be able to hold the additional cable volume, which was significant.

PEMA and MCP created a plan for high density cable management that completely resolved this issue, which is further testament to the specialized expertise possessed by the firm's personnel.

The Results

In July 2016, PEMA opened its new state-of-the-art, 132,448-square-foot headquarters facility. The amphitheater-style CRCC features a video wall consisting of multiple high-definition screens that can be configured in multiple ways—the screens can be viewed individually, clustered in myriad ways, or combined to create a single screen. Moreover, the audiovisual system is distributed throughout the facility, with video screens in every conference room and office, in addition to the CRCC's video wall.

"The audiovisual capability of the new facility dwarfs what we had in the old building," said Richard D. Flinn, Jr., Director, PEMA. "This will greatly enhance situational awareness, continuity of operations, emergency response and interoperability. It is ideal for multijurisdictional responses when a lot of people descend on the CRCC."

Another key aspect that makes the new building state of the art is that every system and subsystem that supports the facility—power, water, heating/ventilating/air-conditioning and telecommunications/broadband, just to name a few—are fully redundant and resilient.

Arguably the greatest accomplishment as it relates to this project is that it was completed under budget—a noteworthy achievement by itself, but one made greater by the fact that the budget was established in 2006, four years before design work began and a full decade before construction was completed. A critical factor in the ability to bring the project in under budget was that minimal change orders were needed during the construction phase.

"Change orders can really increase costs, our ability to avoid them speaks directly to the quality and thoroughness of PEMA and MCP's plan and design for this facility" said Brian Bark, MCP senior vice president. "Working closely with the PEMA leadership and staff throughout the design and construction process was key to the success for establishing a multigenerational facility that is adaptable to the long term public safety needs of the Commonwealth."

About Mission Critical Partners

Mission Critical Partners is a professional services firm that helps clients enhance and evolve their public safety systems and operations through extensive experience, knowledge and resources. By providing insight and support every step of the way, our clients are able to transform their mission critical operations, maximize the value of their investments and ensure optimal performance and success.

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Mission Critical Partners
690 Gray's Woods Blvd.
Port Matilda, PA 16870
Phone: 888.8.MCP.911 or 888.862.7911
Fax: 814.217.6807

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