



Hexagon Supports Public Safety During Olympic Games

State of Rio de Janeiro

Brazil

In 2016, the city of Rio de Janeiro, Brazil, hosted the Games of the XXXI Olympiad and XV Paralympic Games. Attracting more than 10,500 athletes and 1.4 million tourists from around the world, the Olympic Games was the highest-attended event ever hosted by a Brazilian city.

Different public agencies and civil society groups worked together to deliver the best Olympic Games to date. Because resources were limited, the city required targeted investments to provide high-quality public safety and security during the event and leave a positive legacy for Rio de Janeiro. As a result, the Military Fire Department of the State of Rio de Janeiro, also known as CBMERJ, worked with Hexagon to deploy a suite of solutions to help the city tackle these challenges.

In 2014, CBMERJ began using industry-leading computer-aided dispatch (CAD) software from Hexagon's Safety & Infrastructure division for day-to-day operations. To support activities during the Olympic Games, CBMERJ also implemented other Hexagon technologies for large-scale event management, situational awareness, and reporting.

Prompt Incident Management

Hexagon's support of CBMERJ began with call-taking and dispatch capabilities to control and monitor events via CAD. CBMERJ's coverage area includes the entire state of Rio de Janeiro. A large number of its crew members

are dedicated to operations in the capital city, with more than 7,000 daily calls handled by 54 positions in its operation center. The scalability of Hexagon's CAD solution was key in enabling CBMERJ to handle an influx of calls and events during the Olympic Games.

Because all events are registered in CAD, the system stores and displays all call details and histories, resulting in prompt service with fewer mouse clicks. It supports decision-making related to the proper deployment of personnel, equipment, and vehicles based on the type and location of incidents. The solution increases agility by dynamically allocating the best available resources and continually monitoring the status of incidents remotely.

Detailed Planning & Execution

Given the complexity of an event like the Olympic Games, extensive planning was also mandatory – not only to assist ordinary operations, but to address urgent and unexpected events of many different types. To meet this need, the organization programmed the entire event into Hexagon's major incident and event management solution, including the arrival of delegations in Rio de Janeiro; detailed organizational charts; dedicated timelines for battalions responsible for specific venues; and the type, location, and time when different vehicles would be used.

As CBMERJ allocated different resources to perform specific tasks, the ability to remain in contact with all personnel was important. Hexagon's web-based application for managing incidents and major events enabled CBMERJ to have control over the entire organizational chart for operations, providing immediate access to critical information like names, phone numbers, radio aliases, and more for responders in the field and other centers and organizations as needed.

Timeline functionality also helped to estimate work demand during Olympic Games events and competitions. That way, CBMERJ knew in advance when and where personnel would be needed and how to arrange shifts accordingly.

Realistic 3D Models

Another benefit Hexagon provided to CBMERJ was a detailed 3D map of the Olympic venues. Under the coordination of Hexagon's Brazil office, Leica Geosystems used its Pegasus:Two mobile sensor to survey selected streets around the Maracanã Stadium, Sambadrome, cycling event courses, and other locations.

Leica Geosystems also surveyed the interior of key buildings such as the Arenas Cariocas using a P40 ScanStation. They also collaborated with ESTEIO, a local company that uses Leica Geosystems technologies to help survey the Olympic Village and Olympic Park with Leica's RCD30 Oblique Camera.

The massive amount of data, point clouds, and oblique imagery were then processed by multiple Hexagon teams – Hexagon Geospatial, North West Group, and myVR Software – and by Hexagon's partner, Skyline Software Systems. Besides helping to process the data, Skyline delivered a highly detailed 3D mesh and published the

3DML file to the web. This model helped with monitoring, surveillance, and response planning activities, including 3D analysis to run horizontal and vertical measurements, lines of sight, and threat domes.

Skyline's TerraExplorer and Hexagon's GeoMedia 3D delivered much more than basic 3D visualization. For example, CBMERJ could run analyses to check if a given vehicle would be able to reach a certain place based on the gate's height. An actual model of the vehicle could be loaded, scaled, and rotated to ensure optimum placement given parking constraints and driving maneuvers. The 3D mapping capabilities also helped reconstruct events to determine better routes and positioning of crews during future incidents.

Quick Visualization & Analysis

It was not enough for CBMERJ to simply collect operational data, it also needed to quickly access and analyze it. CBMERJ deployed Hexagon's Incident Analyzer, using its Smart M.App platform, and S|Portal, a local situational awareness and reporting tool based on Hexagon's GeoMedia WebMap and Geospatial Portal. These GIS tools allowed supervisors to consult CAD's event history and monitor events in surrounding areas in real time via maps and dashboards.

"CBMERJ operations for the Olympic Games involved more than 2,500 employees and 76 advanced tactical units, and the technologies provided by Hexagon were essential to optimize the planning of our resources on the ground. These solutions also helped to allocate tasks from the plan and monitor the execution for this huge and complex project," said Major Marco Basques, operational command and control general director at CBMERJ.



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Operational Command & Control General Director, CBMERJ

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Hexagon's Safety & Infrastructure division provides software for smart and safe cities, improving the performance, efficiency and resilience of vital services.

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