



Municipal command center helps City of Belo Horizonte handle ongoing growth

Brazilian cities are famous for their scenic views, friendly people, great food, vibrant culture—and, at times, heavy traffic.

Like Los Angeles, Tokyo, Mexico City and other large cities, Rio de Janeiro and São Paulo can experience long delays on their roadways. It's only natural that people in other parts of the country worry, as their own cities grow, that they may experience similar traffic jams.

For that reason Belo Horizonte, Brazil's sixth largest city and third largest metropolitan area,¹ has made significant investments in its roadways and mass transit system.

Among the city's most innovative projects is a new transportation command center, the Centro de Operações da Prefeitura de Belo Horizonte (COP-BH). It opened last year with a very large, very advanced monitoring and control room using breakthrough display wall technology from Mitsubishi.

The new command center

Belo Horizonte is a remarkably beautiful place. With its wide avenues, tree-lined streets and unusual architecture, it was the first planned city in Brazil. It has the nation's fourth largest economy, accounting for about half of the state of Minas Gerais' gross domestic product.²

The new R\$31.6 million operations center (\$12.5 million USD) provides comprehensive command and control for Belo Horizonte Public Transit, the Civil Defense, the Municipal Guard, the Office of Urban Sanitation, the Mobile Emergency Service, the Municipal Supervisory Assistant and other city agencies.

The COP-BH control room has workstations in place for up to 96 operators and 10 supervisors, served by a 2.4-meter high x 16-meter wide display wall using 20 Mitsubishi SXGA+ rear projection cubes. This huge display provides a total resolution of 14,000 x 2,100 pixels, on which operators can show any number of video and data windows in a wide range of layouts. It provides technicians and public officials a comprehensive picture of the entire city.

One of the most important uses of COP-BH is the monitoring of automotive and truck traffic plus the busses and special bus lanes that provide the city's rapid transit. According to Nilton Mendes, the Regional Sales Manager for Mitsubishi Electric Visual and Imaging Systems Division, "The main corridors are always busy yet traffic flow is not always ideal. The control center is a critical environment where operators can act very quickly 24/7/365 to improve conditions."

Today 120 of the city's busiest intersections have intelligent traffic signals monitored and controlled from COP-BH. "We can regulate the timing of the red and green lights to keep traffic moving, or turn a series of lights green and others red to help clear a gridlocked stretch of our roads," explains Rafael Kraemer, Superintendent of Image and Video Services for the city.

The city also employs a network of red-light cameras, parking cameras and speeding cameras to automate traffic enforcement and encourage people to drive more safely. These are monitored from COP-BH as well.

The city has an additional 1,000 pole-mounted CCTV cameras, strategically placed around the city to help operators understand and adjust traffic flow, as well as to recognize accidents and dispatch

emergency crews. “We also see accident reports, weather reports and transit data—everything related to traffic,” Kraemer adds.

In addition to traffic control, COP-BH is the nerve center for all city services. For example, because of its humid subtropical climate and location in a mountainous region, flooding during the rainy season can be a major issue. Operators from the Municipal Supervisory Service therefore keep a careful eye on weather conditions, always ready to mobilize emergency crews.

COP-BH is tied into the 911 dispatch system and monitors and helps control the public ambulance system. It monitors air and water pollution and can dispatch officers to investigate environmental violations.

The control room helps the city’s Municipal Guard solve non-violent crimes. Surveillance cameras in the bus terminals, in other public areas and on the busses themselves, send signals to a bank of digital recorders controlled and accessed from COP-BH. “We don’t monitor all of these cameras in real time,” Kraemer says, “but we can access the recordings as needed.”

Operators at COP-BH do use a portion of these cameras to monitor the size of crowds waiting for public transit. “We will send more busses when they are needed,” Kraemer explains. That ability was a major factor in the management of crowds during the World Cup last summer, during which Belo Horizonte hosted six games. Transportation managers can react very quickly to any unexpected situation and dispatch whatever resources are needed to deal with them.

The World Cup and the 2016 Olympics

Although municipal authorities had been considering a new city command center for a number of years, it was the hosting of the World Cup last summer that was the final impetus for the funding and construction of COP-BH.

“We actually completed three major control room projects in Brazil during the 30 days prior to the tournament,” says Ramon Carriedo, a Senior Sales Support Engineer at Mitsubishi Electric. “When you host such a large and important event, you have to make sure you’re ready for the millions of people traveling to attend.” The six games that BH hosted in 2014 –and the additional games that Mineirão Stadium will host during the 2016 Summer Olympics–brought the potential for traffic delays and confusion to an entirely new level, and so there was a major push to be ready.

The new video wall, which Carriedo helped design and install, consists of twenty 80”-diagonal Mitsubishi 80PE78 rear-access projection cubes in a 2 x 10 configuration. Mitsubishi cubes use the latest LED technology, offering up to 100,000 hours of service without any required maintenance. That’s almost 11 years of continuous, 24/7 use, about 25% longer than any other projection cubes can achieve. “Once the video wall is installed and activated it may never be turned off,” Carriedo explains. “The point is to keep it humming, year after year after year.”

Should one of the cubes ever experience a service issue, technicians at COP-BH will be able to open the back, replace the defective part or, worst case, lift out the optical engine and install a spare one. This can be done in literally a few minutes, without affecting the rest of the display wall. That’s a crucial advantage in a mission-critical facility like this.

The Mitsubishi team also installed a fail-safe system for the

computer workstation that inputs the data and video from the city’s cameras and computer systems and outputs it to the display wall. “We are using two identical Jupiter video wall controllers in a fully redundant setup,” Mendes explains. “If one fails, the other can take its place instantaneously.”

Kraemer says the installation of the display wall was challenging in that the timeframe was very tight and, with the World Cup about to begin, there was no possibility of an extension. “Once we issued the purchase order, we had only 45 days to get the components delivered and installed,” he explains. “With that said, Ramon and his support team worked magic. He had the display wall operational nine days early.” President Dilma Rousseff visited the facility June 8 and the city hosted its first World Cup match on the 14th.

“The support from Mitsubishi has been great,” Kraemer adds, “and the operation of the display wall has been trouble free.”

Carriedo adds that, “The City of Belo Horizonte did a great job in supporting the World Cup, a great job keeping people safe and keeping the roads open. It was truly a mission critical situation, with the influx of people coming in for the games. We’re proud that our products were useful to this huge and very successful world event.”

While COP-BH is an invaluable tool during international events, its greatest worth is in the day-to-day management of the city, especially given the growth of the city’s population and vehicular traffic. Its advanced technology, including the Mitsubishi display wall, will protect Belo Horizonte for many years to come.

¹Almost 2.5 million people in the city itself, according to census figures from the IBGE – the Brazilian Institute of Geography and Research.

²According to the Brookings Institute.

