



# eBus fleet planning & scheduling: The Bogota case study

The public transport company Mueve Fontibón, concessionaire of TRANSMILENIO S.A., Colombia's leading BRT company, has chosen the MAIOR Transit Scheduling Suite to plan the operations of its 172 new 100% electric vehicles to provide the public transport service in the western part of the capital city.

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Thanks to these new vehicles, 1.5 tons of pollution per year will no longer be emitted, the emission of 3.200 tons/year of CO<sub>2</sub> will be avoided, and the frequency of service for six lines will be improved.

*"We are happy and proud to deliver this operation to the locality of Fontibón and the citizens, where we will mobilize about 30,000 passengers a day."*



Provided by Mueve Fontibón



## What challenge was the partner facing?

Optimizing the operations' planning of the service for the full electric vehicle fleet.

*These buses are affordable, have clean technology, and are environmentally friendly. This new fleet will improve the quality of life in Bogota and benefit everyone who interacts with the electric bus system." - Andrés Fernando Cortés Jaramillo, General Manager of Mueve*

### The new electric buses feature technological elements to improve the passenger experience:

- Noise reduction, Wi-Fi access, and USB ports
- Information screens and sounds for route information
- Accessible platforms for people with disabilities.

### The new ultra-modern fleet aims to increase the efficiency of operations and facilitate the work of drivers:

- Rapid vehicle charging process
- Direct communication with the service control center and ITS system
- Automatic driving with start and hill assist.

### Charging electric vehicles

The depot, where charging of these new electric vehicles takes place, has 81 chargers, each with »

## FOR DAYS BETWEEN MONDAY AND FRIDAY:

Total trips: **666** PER DAY

Total vehicle blocks: **162** SINGLE-LINE TYPE

## Total driving duties:

**382** DIVIDED BETWEEN FULL-TIME AND PART-TIME SHIFTS, WITH A MAXIMUM OF ONE VEHICLE CHANGE PER SHIFT

Total kilometers: **32,688**



## What has the outcome been?

Starting from scratch, they completed their optimized service in just six weeks.



Provided by Mueve Fontibón



**4** How did M.A.I.O.R's solution help the partner to solve their problem?

By providing the customer with optimised schedules for the entire electric bus fleet, managing all specific EV parameters.

**3** What led them to M.A.I.O.R?

Its powerful and flexible software. The experience in the market of over 30 years. The worldwide references that demonstrate expertise and understanding of the planning and scheduling problem.

**Scheduling optimisation with electric buses**

Bogota completes 655 zero-emission buses and five 100% electric bus depots to operate the system. This new electric fleet, consisting of 83 large buses with 80-passenger capacity and 89 medium buses with a 50-passenger capacity, will provide service on six routes.

Since February 2022, and only six weeks after acquiring the MAIOR Transit Scheduling Suite for service planning, Mueve Fontibón has been optimising, simulating, and analysing service planning scenarios.

an output of 150 kW. This means that when two buses are connected, each receives 75 kilowatts (kW) of power.

In this case, the estimated charging time for the electric buses is four hours, and if charging is done individually, it takes about two hours.

**Optimisation in numbers**

The Mueve Fontibón service has **two circular and four regular lines, one depot, and 561 bus stops.** The service runs from about 03:00 to 22:00, with a frequency of about six minutes and a travel time calculated between two and four hours. 📶

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