TUMI E-bus Mission City Network - Profile

AGUASCALIENTES, MEXICO

CITY FEATURES

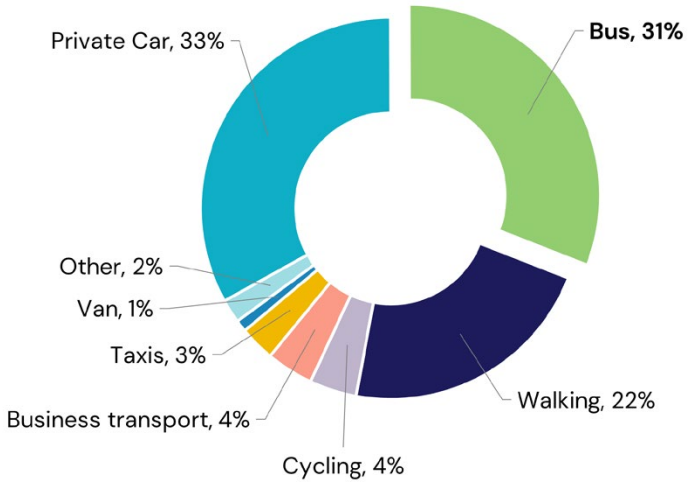
Aguascalientes is one of Mexico's 32 states. The metropolitan area of Aguascalientes consists of 3 municipalities, including the capital (with the same name as the state). The main economic activity of the state is manufacturing, followed by agriculture and tourism during the San Marcos Fair in the month of April. The city is mostly flat, except for the eastern part of the city which is where most of the population lives. The trend for residents in Aguascalientes is to use their personal vehicle because, for decades, public transport was inefficient and people got used to traveling by car.

Population
1,425,607

Land area
5,680.3 km²

TRANSPORT FEATURES

Modal Split[1]



GHG Emission Levels[2]

Total GHG emissions
155,230.67 tCO_{2eq}

From road transport
38,807.67 tCO_{2eq}

Air Pollutant Levels[2]

PM 2.5 **473.48 µg/m³**	NO_2 **17,964.4 µg/m³**
PM 10 **645.44 µg/m³**	SO_2 **391.67 µg/m³**

Aguascalientes has an Integrated Multimodal Transport System Project. It currently operates with the ""Colectivo Urbano"" mode, that provides service in the Metropolitan Zone (MZ) of Aguascalientes. However, other modes of transport are used in the inland municipalities that connect with the MZ. The trunk, auxiliary and feeder corridors and routes include 5 interconnected multimodal terminals at strategic points in the MZ, with 3 preferential lanes at the trunk corridors.

Efforts have been made to introduce equitable and accessible urban modes in the form of active mobility. The use of bicycles as a mode of transport has been regulated, in addition to planning exercises to introduce clean mobility projects to counteract environmental risks in the state.

1 Own elaboration based on information from Accidentes de tránsito terrestre en zonas urbanas y suburbanas 1997-2018, INEGI
2 Programa Cielo Claro para la Mejora en la Calidad del Aire del Estado de Aguascalientes 2018-2028

BUS SYSTEMS OUTLOOK

Bus Trips Features[3]

Number of bus trips
260,000 (2019)
160,000 (2020)

Average time
36 min

Average distance
10 km

Trips by purpose

Work	57%
Recreation	11%
Return home	8%
Shopping	8%
Study	6%
Others	11%

Trips by gender

Men	52%
Women	48%

As a user, the first step is to find out which bus route reaches the destination in the shortest possible time. There are many options, as sometimes routes can pass through the same places, so one can get the information from online sources (apps, websites, etc.) or through word of mouth. Waiting time is between 5 to 40 minutes, depending on the expected route. Fares can be collected in cash or by card through electronic payment.

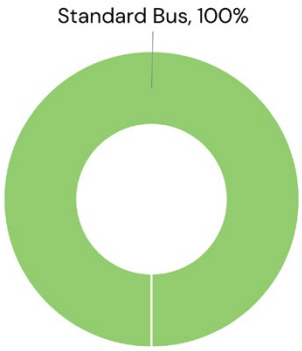
Fleet and Infrastructure

Number of buses
415

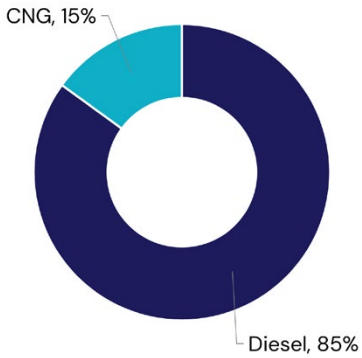
Number of routes
46 (non-BRT)

1,670 bus stops
5 bus depots

Buses by fleet type



Buses by fuel type



Quality of Service

In Aguascalientes, there is a large coverage of public transport services in the Metropolitan Area. Currently, the routes are in the process of re-engineering to make them more efficient in the transfers. The transfers were not possible previously due to the payments in cash, but now with the help of e-payments the transfers are enabled and accessible. In a poll made last year, the users gave the public transport service a grade of 7.9 out of 10.

3 CMOV

Existing Business Model[4]

A	B	C	D	E
Model A: *Vertically integrated, private operator in BRT/integrated system*	***Model B:*** *Divided responsibilities in BRT/ integrated system*	***Model C:*** *Large, more formal, private operator in traditional service*	***Model D:*** *Small, informal, private operator in traditional service*	***Model E:*** *Government-run system*

C

A single concessionnaire is responsible for an entire urban public transport system, on the basis of per kilometer pricing in which a fare is collected and deposited in an operating trust. The payment reconciliation are made weekly, and the operator is paid for the services.

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4 Based on Accelerating a market transition in Latin America: New business models for electric bus deployment, P4G, Zebra and Dalberg, 2020

OPPORTUNITIES AND CHALLENGES FOR ADOPTION OF E-BUS FLEETS

Opportunities

- The greatest opportunity is in the continuity of developing a better public transport system. In 2017, the Integral Transport System Metropolitan Area of Aguascalientes, built 2 Trunk Corridors of 25.0 km with centralized traffic lights (Av. Independencia - Gandhi and Av. López Mateos – Tecnológico – Hidalgo).
- 37 stations and 5 terminals (3 with patios and workshops) were developed in view of the transport improvement.
- In 2019, operators acquired 55 buses from Gas Natural. At present, the operators are seeking to improve the current system by switching it to the electric bus system.

Challenges

- The main challenge is economic and road infrastructure, as the new low-floor electric buses require roads in very good condition, which are not available throughout the city.
- The proposals are needed for the restructuring of the public transport system, roads infrastructure and urban development.
- The study needs to be conducted to find out a technical feasibility (functional and operational design) which helps in choosing the best option by taking a cost-benefit analysis into account, and highlighting the social and environmental impact.

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About the TUMI E-Bus Mission

Funded by the German Ministry for Economic Cooperation and Development (BMZ), a core group of organizations supports cities in their transition toward electric bus deployment. For more information, please contact: tumi-network@iclei.org or visit https://sustainablemobility.iclei.org/tumi/

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