

CITY FEATURES



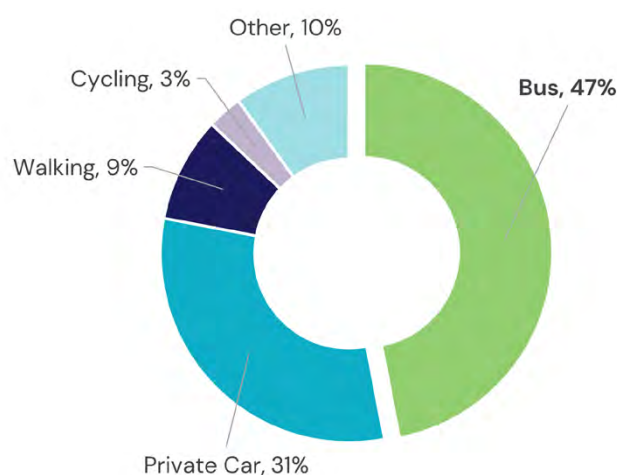
Mérida is the capital of the state of Yucatan, located at the northwest of the Yucatan Peninsula, approximately 35 km inland from the Gulf of Mexico coast. It is the most populated city and where the main social, cultural, educational and financial activities are concentrated. The Metropolitan zone of Merida is officially made up of 5 municipalities, three of them conurbated with Merida and the other two still detached from its continuous urban sprawl.

The city is one of the fastest growing municipalities in Mexico, partly due to migration. Urban growth was gradual for several decades, but in recent years it has expanded beyond previously established geographic boundaries; nowadays with an urban footprint of about 80% larger compared to the 1980's.

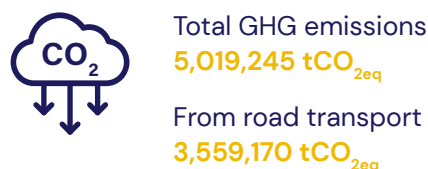
 Population	 Land area	 Average temperature
995,129 (2020)	858.41 km ² (INEGI)	26°C

TRANSPORT FEATURES


Modal Split¹



GHG Emission Levels²



Air Pollutant Levels²

	PM 2.5	NO ₂
	17.4 µg/m³	—
	PM 10	SO ₂
	—	—

Public transport (buses) is the primary mean of transportation in Mérida, accounting for more than 40% of trips per day, with an average of 1,200,000 trips daily. The Municipality of Mérida does not have a department that deals with public transportation, as everything is handled by the state of Yucatan.

Private vehicles come in second place, comprising about a third of total trips, with an upward trend. The number of motorized vehicles in the Mérida Metropolitan Area has increased in recent years. From 2000 to 2018, the number of cars increased from 132,000 to 429,000 (INEGI, 2019). Currently, in Mérida, for every two people there is one vehicle, one of the highest motorization rates in Mexico. This situation causes congestion, and impacts the environment and air quality, thus increasing carbon dioxide emissions and harming citizens' health.

1 Sustainable Urban Mobility Plan Mérida 2040, 2019

2 Yucatán Air Quality Monitoring, Yucatán Sustainable Development Secretary

BUS SYSTEMS OUTLOOK

Bus Trips Features


 Number of bus trips
56,486 (2019)
255,217 (2021)


 Average time
44 min



 Average distance
 —


Although, there is no current disaggregated data available, it is estimated that women, elderly and young people, as well as, middle- low income citizens account for the majority of bus riders in the city. Work and study are perceived as the main reasons for bus trips.

The majority of bus routes follow either a radial or a pendular pattern in a center-periphery-center fashion, resulting in an oversupply on these routes, versus a bus shortage for trips that do not follow these routes. This results in inefficiency of travel, due to the waste in time and money, making transfers (Merida Municipal Planning Institute, 2019).

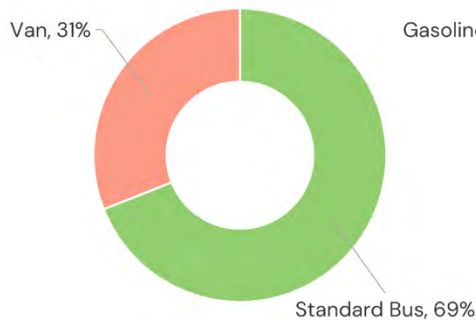
Fleet and Infrastructure


 Number of buses
1,616

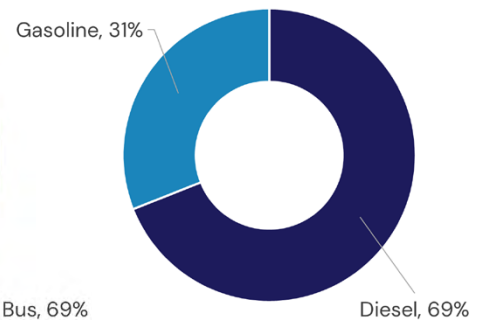

 Number of routes
1 BRT (Bus Rapid Transit)
142 non-BRT


 Number of bus stops
3,830

Buses by fleet type



Buses by fuel type



Quality of Service

Public transportation In Mérida has to overcome challenges in order to offer the quality of service required. Historically, there has been a fragmentation of how the transportation service is provided through concessions given to private operators who operate on separated, non-integrated routes. Lack of a comprehensive and unified route system makes the bus trips highly inefficient and unreliable. To get to your destination, you have to take two buses. Travel time is about 44 minutes to reach a destination (due to the centralization of public transportation, overcrowding of transportation routes).

The minimum fare is \$8 (Mexican Pesos). Also, the routes are very crowded and it is not comfortable to travel, as sometimes, it is difficult to find a seat. Safety is not the best for women and children, as there are no designated seats for this section of the population.



Existing Business Model³

The city of Mérida does not have a public transportation department, which is managed by the state of Yucatan. Historically, there has been a fragmentation of how concessionaires and transportation lines offer the service, as it is centralized.

A

Model A: Vertically integrated, private operator in BRT/integrated system

B

Model B: Divided responsibilities in BRT/integrated system

C

Model C: Large, more formal, private operator in traditional service

D

Model D: Small, informal, private operator in traditional service

E

Model E: Government-run system

A

The Metropolitan System Va y Ven was recently inaugurated and covers a route of around 50 kilometers with partially dedicated bus lines along the Mérida Peripheral Ring. Van y Ven system is currently regulated by the Institute of Territorial Urban Mobility and Development (IMDUT) and operates through a concession granted to Mobility ADO, which is, in turn, the owner of the buses. Under the current contractual agreement, it is stipulated that the operating entity is also in charge of bus maintenance. The state government is in charge of maintaining infrastructure, i.e., bus stops and roads, for appropriate operation performance. The current general cost of the system is twelve Mexican Pesos (approx. 0.6 US dollars), and fares are paid through an electronic card. The system does not have any subsidies, but it does have special rates for students and the elderly, at five Mexican Pesos.

D

1109 vehicle units are owned by private companies, which are also granted the concession to operate public bus routes. Vehicle units have an average of 10 years of age. Due to low demand and current financial conditions, some lines operate in a limited and unreliable manner, at certain areas and times in the city, affecting the overall quality of service for passengers. For this reason, the state government plans to issue bonuses for the concessionaires per kilometer of travel, to ensure regular service, regardless of the number of passengers per route.



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³ 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 region currently has a digital fare collection system for the new system called “Va y Ven”, which will facilitate the transition to the electric transportation system.
- Discussions on the adoption of electric buses have taken place in the current government. Similarly, the road infrastructure is being restructured to ensure the performance of the public transport service.
- There is a proposal to renew the fleet to electric and hybrid buses. With the implementation of electric buses, it will be possible to meet the needs of users for an efficient, environmentally friendly and reliable urban transportation system.



Challenges

- The main challenges facing the city in the adoption of electric vehicle fleet is the availability of adequate infrastructure, the lack of charging centers, optimization of the performance of electric buses.
- When implementing electric bus routes, new units will have to be acquired, which, in addition to being expensive, present the situation that concessionaires do not have the capital to buy these.
- Another great challenge that is faced is that the state's electrical infrastructure does not have the capacity required for the demand of electric buses.



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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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