

CITY FEATURES



Indore is the financial capital of the state of Madhya Pradesh. It is situated on the southern edge of the Malwa plateau in central India. The city is the most populous and largest in the state and serves as the administrative headquarter of the Indore division. It acts as the education hub of the state, with campuses of the two most prestigious institutes in the country. The city has grown with industrialization and commercial development, coupled with the rise in population in the recent decade. Indore has a high rate of urbanization and the growth of the city is happening on the outskirts of the municipal limit. Overall, the city structure is compact with mixed land use characteristics.



Population
1,994,397
 (2011)



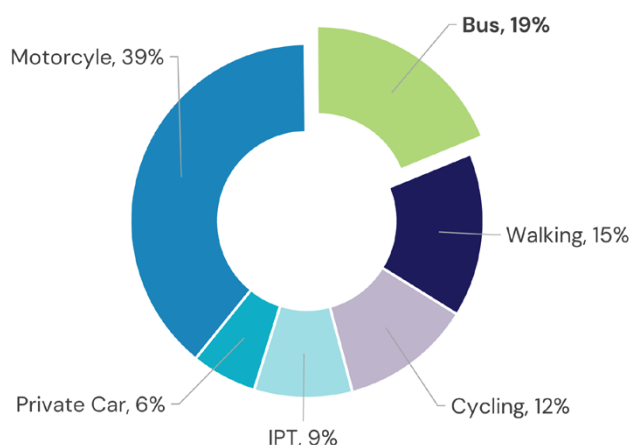
Land area
530 km²



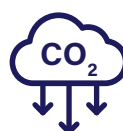
Average temperature
24.7°C

TRANSPORT FEATURES

Modal Split¹



GHG Emission Levels²



Total GHG emissions (Indore District)
2.54 million tCO_{2eq}
 From road transport
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Air Pollutant Levels³



PM 2.5	39.52 µg/m³	NO ₂	45.48 µg/m³
PM 10	99.49 µg/m³	SO ₂	9.96 µg/m³

The need for public transport is taken care of by the combination of bus transport and Intermediate Public Transport (IPT) within the city boundaries. There is a city bus system and the bus rapid transit system which operates on different routes to provide streamlined and fast connectivity between different zones of the city. Along with that, sustainable mode of transport accounts for 28 percent of public transport (Buses and IPT) and non motorised modes, which includes walking and cycling, account for 27 percent. On the other hand, urban growth in the past has also led to an increase in the private mode of transport, leading to issues like traffic jams and rising air pollution in the city. The city is, thus, taking initiatives to move towards electric mobility in public transport.

¹ Comprehensive Mobility Plan Indore, 2012

² Climate Change and Environment Action Plan of Indore District, Executive summary, 2022

³ Central Pollution Control Board, Delhi

BUS SYSTEMS OUTLOOK

Bus Trips Features



Number of bus trips

2019 **53,138** BRT
138,741 Non-BRT

2021 **30,000** BRT
78,170 Non-BRT



Trips by gender

Men **45%**
Women **50%**
Non-binary **5%**

Only 19 percent of trips by city residents have been performed with buses for their day to day commute for different purposes. Out of these trips, most of the bus trips have been carried out for the purpose of commuting to school, workplace and business trips. On average, the buses in the city take around 40 to 50 minutes to complete a trip on particular assigned routes. The routes of buses are well connected to all the activity nodes of the city.



Average time

40 min BRT
45 min Non-BRT



Average distance

207 km
(per day)

Fleet and Infrastructure



Number of buses

414



Number of bus routes

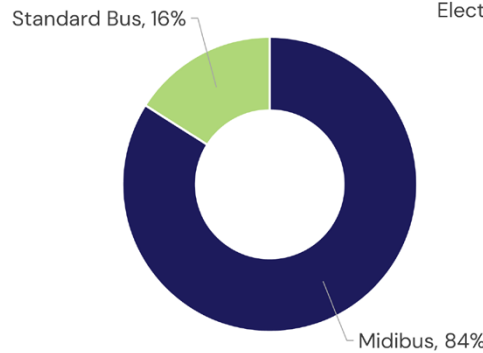
37



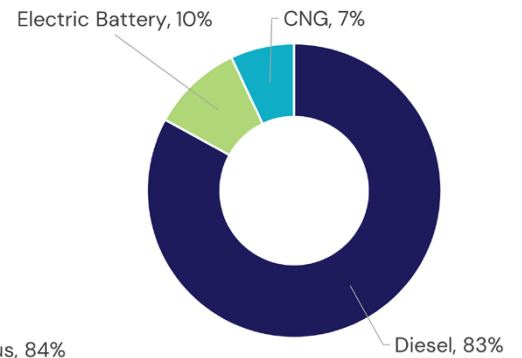
188 Bus stops

6 Bus depots

Buses by fleet type



Buses by fuel type



Quality of Service

The network of urban bus transport and bus rapid transport covers most parts of the city. During the daytime, the service and frequency of buses are stated as satisfactory, except for the fact that the frequency is reduced during the night. On the BRT line, the buses move on dedicated separate lanes, resulting in fewer delays. However, city bus service usually gets delayed due to traffic jams. During non peak hours, the bus riding is comfortable but during peak hours, buses are overcrowded. The fares of bus transport are minimal and affordable for most segments of the population, except for the poor people. The facilities for inclusive accessibility for disabled people are lacking in the city's bus transport. On the other hand, travelling on the bus is considered safe for women due to the facility of CCTV cameras in the buses.



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Existing Business Model⁴

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

B

Atal Indore City Transport Service Limited (AICTSL), as a special purpose vehicle, operator is responsible for running the city's bus transport. The private operators are selected for the operation and maintenance of buses. The diesel buses are operational under Viability Gap Funding, Net Cost Model and Gross Cost Contract Model. Compressed Natural Gas buses are operational under the Gross Cost Contract model. Under the Indore model, the private company that operates the buses is given INR 31.50/km and the company that collects the revenue is giving INR 32.40/km. AICTSL takes care of the construction and maintenance of bus stops. The investment incurred in the procurement of buses has been done by the State and Central governments through multiple schemes. The advertisement revenue is another source of revenue that has been used for operational expenditure.



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E-BUS ADOPTION APPROACH

February 2018

Process of procurement of 40 electric buses under FAME-I started

November 2019

Inauguration and operation of buses started

November 2019

Declared Model Electric mobility city under State Electric Vehicle Policy

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

E-bus Fleet Technical Features



Number of e-buses
40 (Tata, model Ultra Electric Bus)



Passenger capacity
32 pax



Battery features
Capacity **124 kWh**
Range **150 km/charge**



E-bus Business Model

AICTSL is responsible for the operation of electric buses in the city and they are responsible for fare collection, scheduling and routing of these buses. Since AICTSL is a government owned company, all the investment and risk involved in the electric bus project are associated with AICTSL and the State government. These buses are operated and maintained by private operators which are selected through open bidding by AICTSL on the Viability Gap funding (VGF) model.

Opportunities and Challenges to Scaling E-Bus Fleets



Opportunities

- With only 19 percent of public transport in the city, there is a lot of opportunity to shift towards public transport, especially when electric buses should constitute more than 40% of public transport, as per Comprehensive Mobility Plan Indore, in 2031.
- With the reduction in dead kilometers through better planning, the efficiency of electric buses will improve and the existing operational cost will be reduced. This will support the transition towards electric buses.
- There is a high share (83%) of diesel buses in the existing fleet. Despite this, the transitional shift towards electric buses is quite high as the operational cost is low and the opportunity for the shift towards electric buses is high in the city.



Challenges

- The increase in private motorization and shift towards private mode of transport is a threat to public transport as well as to electric buses.
- The private operators still view the electric bus technology as risky and difficult to operate because they lack in-depth knowledge of these types of buses.
- The high capital cost of electric buses makes it unviable for private operators to shift towards electric buses from Internal combustion engine (ICE) buses. The FAME-II scheme helped and subsidized the capital cost of procurement and helped the authorities shift towards it. So, it needs to be reintroduced to support the shift towards 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/>