

CITY FEATURES

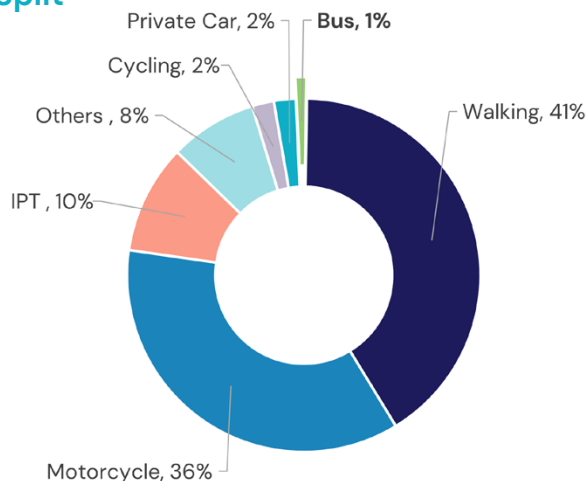


The city of Surat is located in the western part of India in the state of Gujarat. It is a port city and lies on the bank of the Tapti River at the Gulf of Khambhat. Surat is one of the cleanest and most vibrant cities with an equally varied heritage. It has one of the fastest growth rates due to fast growing economy. In the past, it was a glorious port with ships from more than 84 countries anchored at its harbour at any time. The city is known for producing high-quality silk, cotton, and synthetic fabrics that are exported all over the world. The city is the commercial and economic center of South Gujarat, one of the largest urban areas of western India and the hub of the diamond and textile industries.

	Population		Land area		Average temperature
	4,645,384 (2011)		462.149 km ²		27°C

TRANSPORT FEATURES

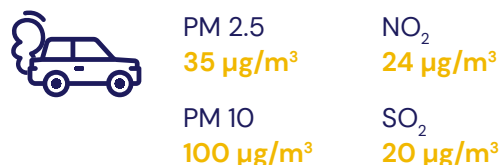
Modal Split¹



GHG Emission Levels²



Air Pollutant Levels³



The city bus and bus rapid transit (BRT) services run the bus transport in the city. Due to compact and mixed land use development, walking trips account for the highest share of 41 percent and two wheelers are the most prominent motorised mode of transport with 36 percent share. As per the Comprehensive Mobility Plan, there are 5.46 million passenger trips, expected to reach upto 12.5 million by 2046. With high motorization rates, the number of vehicles registered in the Surat Regional Transport office has risen from 62,000 in 1980 to 3.09 million till March 2018. The growth in vehicles was around 9 percent per year in the last five years. It is seen that two wheelers lead the growth, followed by cars and three wheelers. However, the city needs to reduce congestion and air pollution by focusing on efficient public transport.

1 Comprehensive Mobility Plan Surat, 2046
 2 Sustainable Urban Transport Index Surat, 2018
 3 Central Pollution Control Board, Delhi, 2021

BUS SYSTEMS OUTLOOK

Bus Trips Features


 Number of bus trips
 2021
150,000 BRTS **100,000** City Bus

 Average time
25 min BRTS
25 min City Bus

 Average distance
 — BRTS
210 km City Bus

The city bus and BRT services carry an average of about 0.25 million riders per day. The bus passengers use the buses for varied purposes like work, education, social and recreational trips. In both bus services, the bus takes around 25 minutes to complete one route. The bus services are also used by tourists and visitors because it is well connected to all tourist attraction points in the city. It connects all major origins and destinations, including transport terminals, textile markets, commercial hubs, ISKON temple, Ambika Niketan Temple, Municipal Aquarium, lakes and other tourist spots. The majority of bus passengers are regular users and tourists.

Fleet and Infrastructure

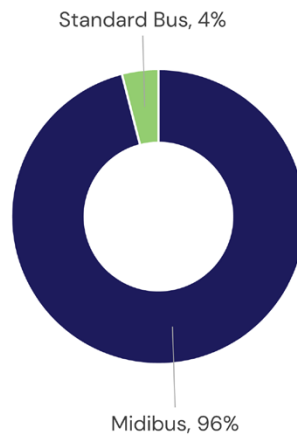
 Number of buses
281 BRTS
575 City Bus

 Number of bus routes
13 BRTS
45 City Bus

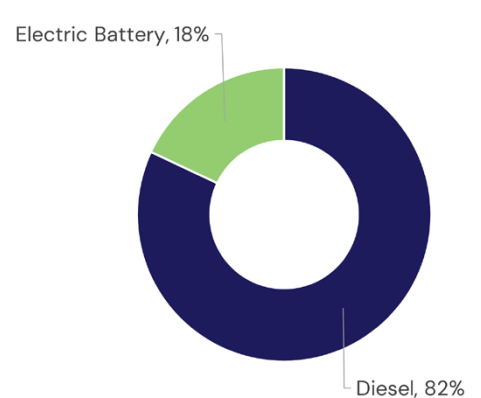
 Number of bus stops
164 BRTS
854 City Bus

 Number of bus depots
5 BRTS
6 City Bus

Buses by fleet type



Buses by fuel type



Quality of Service

All major origin and destination points of the city are connected by the city bus transport services. The 58 bus routes of both bus services serve the city centre and also the peri-urban area of Surat city. Bus rapid transit routes that operate on designated corridors speed up travel and help passengers to reach their destinations on time. Since city buses drive on a shared carriageway and encounter traffic congestion during the rush hour, travel on these routes usually is delayed by 10-15 minutes. The tariff structure is accessible to all strata of society. Bus travel is comfortable, however, during peak hour, buses are crowded. Additionally, buses are equipped with GPS and CCTV cameras, which makes travel safe and comfortable for women and other passengers.



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

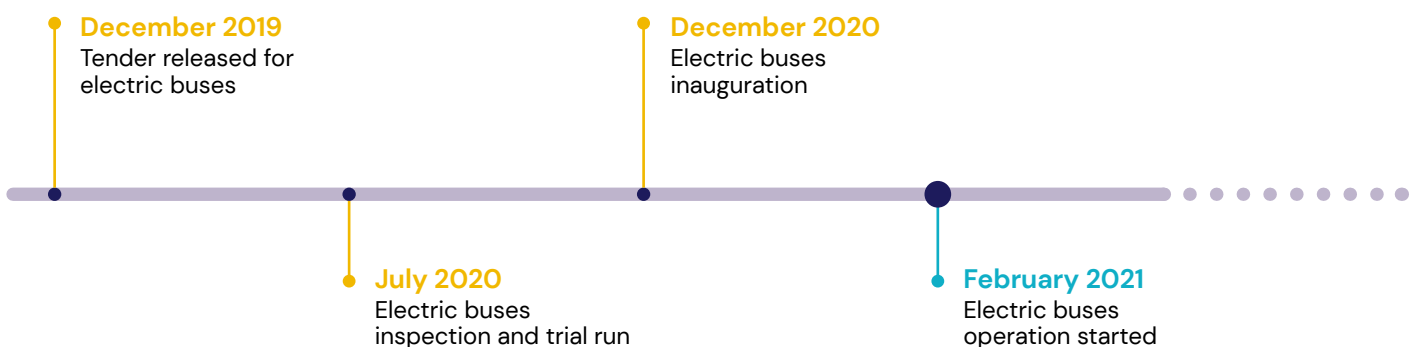
B

The Surat Municipal Corporation's (SMC) division, Surat Sitilink Limited (SSL), is responsible for running the public transportation system in the city. The gross cost contract model has been adopted by a government agency and pays per kilometre costs, including bus maintenance, to private operators for operating buses. The ownership of the fleet will remain with Surat Sitilink Limited after the end of the contract. The construction and maintenance of bus stops and related infrastructure is the responsibility of SSL and SMC. The central and state governments have provided funds for buses and other infrastructure through several programmes, including FAME-II. The state government's subsidy and fare collection from both bus services are used for the operation of buses.



© Mustafa K Sonasath (Surat Sitilink Limited)

E-BUS ADOPTION APPROACH



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
150 (Olectra, model eBuzz K7D)



Passenger capacity
38 pax



Battery features
Capacity **200 kWh**
Range **195 km** with Opportunity Charging



© Mustafa K Sonasath (Surat Sitalink Limited)

E-bus Business Model

Surat Sitalink Limited (SSL) is responsible for running electric buses in the city. The buses are operating on a Gross Cost Contract (GCC) model and the cost per km has been paid to private operators for bus operation. The task of route planning and scheduling of buses lies with SSL and the private operator runs the service on selected routes. The central government's FAME-II scheme has provided a financial subsidy to procure electric buses. The Chief Minister Urban Bus scheme of the state government is helping in the operation of these buses as it provides INR 25 per km for the operation of these buses.

Opportunities and Challenges to Scaling E-Bus Fleets



Opportunities

- The Surat Electric Vehicle policy fixed a target of procuring 300 electric buses by 2024. Therefore, it is directly pushing the state and local level government to procure the e-buses at a rapid pace.
- The state government provides a subsidy for the operation of electric buses, which lowers the operational cost and encourages upscaling buses in the city.
- E-buses operating cost is lower than ICE buses, and active initiatives of Surat Sitalink to move towards e-buses are taken positively by citizens and motivate the authority to go for uptakes of e-buses at a faster pace.



Challenges

- The city has already set up ambitious targets to acquire electric buses. However, due to supply shortages and lack of confidence among private operators to adapt to new technology, there may be a challenge to overcome before strengthening the electric bus fleet.
- The phenomenon of transition towards private modes is challenging the efficiency of the public transport system, as is the case for electric buses.

Acknowledgements

Authors: Sumit Kumar Agrawal (ICLEI South Asia), Shivam Arora (ICLEI World Secretariat)

Contributors: Mustafa K Sonasath (Surat Sitalink Limited), Vijay Saini (ICLEI South Asia)

Editors: Sajili Oberoi, Alyssa Chenault (ICLEI World Secretariat)

Design: Olga Tokareva, Laura López (ICLEI World Secretariat)

Publisher

ICLEI – Local Governments for Sustainability. e.V. © 2023
Kaiser-Friedrich-Straße 7, 53113 Bonn, Germany
All rights reserved

Disclaimer

ICLEI developed this profile in consultation with project cities but cannot guarantee the accuracy of the information and therefore cannot be held responsible for any consequences of its use.

The publication should be cited in full as: "ICLEI – Local Governments for Sustainability (2023). TUMI E-bus Mission City Network – Profile: Surat, India. Bonn, Germany".

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/>