

CITY FEATURES



The city of Shimla is a political, administrative, tourism and education hub of the state of Himachal Pradesh in India. It is situated in the north-western ranges of the Himalayan mountains in India and is often referred to as the “Queen of Hills” with an average elevation of 2207 meters. The city has specific geographical characteristics of hilly terrain with steep slopes and is built over several hills with narrow roads. The tourism sector is one of the major economic sectors of the city. With the high rate of urbanisation and highly dense core area, the development pattern of the city is guided by geographical constraints. The east and west axis act as the main axes of development with expansion in the outskirts of the municipal limits.



Population
169,578
 (2011)



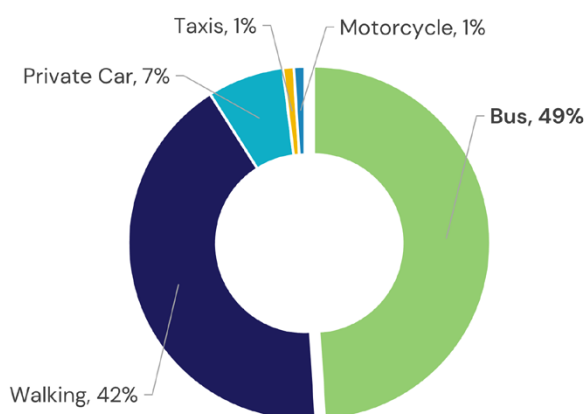
Land area
35.34 km²



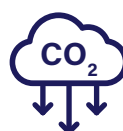
Average temperature
18.4°C

TRANSPORT FEATURES

Modal Split¹



GHG Emission Levels²



Total GHG emissions
222,637 tCO_{2eq}
 From road transport
82,375.69 tCO_{2eq}

Air Pollutant Levels³



PM 2.5	NO ₂
22 µg/m³	5.4 µg/m³
PM 10	SO ₂
56.5 µg/m³	2.1 µg/m³

Sustainable modes of transport (49% public transport and 42% walking) account for over 90% of the commute in the city. With an upward trend in urbanisation, the city is witnessing an increase in the private mode of transport that leads to issues related to traffic jams and environmental problems. Despite that, the city is taking initiatives to move towards electric mobility in public and private transport to reduce the impact of air pollution.

¹ Shimla Comprehensive Mobility Plan 2031, 2012

² Ecologistics City Profiles, ICLEI, 2018

³ Himachal Pradesh State Pollution Control Board, 2021

BUS SYSTEMS OUTLOOK

Bus Trips Features



Number of bus trips⁴

2019 **16,000** Government Buses by HRTC
33,000 Private Buses

2021 **18,200** Government Buses by HRTC
37,000 Private Buses



Average time
50 min



Average distance
90 km

The share of public transport in Shimla is around fifty percent, as mentioned in the study conducted for the city mobility plan 2012⁵. Accordingly, almost half of the city commuters are dependent on buses for daily utility trips. The socio-economic condition of bus users varies from captive users to low and medium income groups primarily because of the route connectivity and frequency. Additionally, buses are reported to be the primary mode of public transport within the city. It also serves the people belonging to different age groups well, ranging from school going children to working professionals and almost all age groups and gender.

Fleet and Infrastructure



Number of buses
180 (HRTC)
120 (Private)

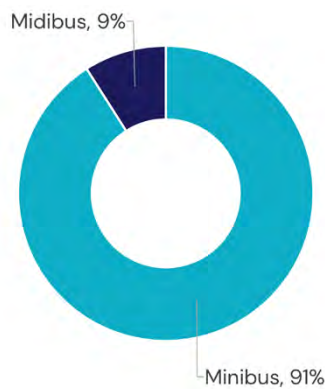


49 Non-BRT routes
— BRT routes

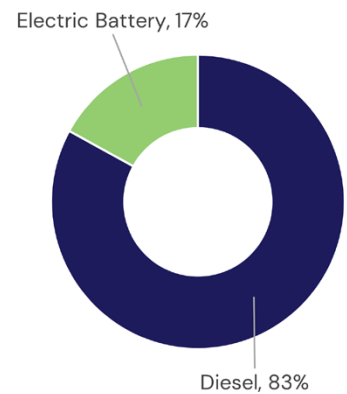


65 Bus stops
3 Bus depots

Buses by fleet type



Buses by fuel type



Quality of Service

The bus transport system run by the government and private operators, covers municipal as well as the peri-urban area of Shimla. Travel with public transport buses is convenient during the daytime, while the frequency of buses is affected during the night and early morning, which makes travelling for commuters inconvenient. During the traffic jam conditions, each trip adds 15 minutes, resulting in delays for passengers to reach their destination. Bus rides are comfortable for people of all age groups but during peak hours, buses are packed and crowded, making travel less comfortable for passengers.

Despite the challenges, buses are safe and accessible for women, children, and elderly people. The fare of public transport buses are fixed by the government but it is still less affordable for poor people.



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4 HRTC - Himachal Road Transport Corporation
5 Shimla Comprehensive Mobility Plan 2031, 2012

Existing Business Model⁶

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

D

The model runs on assigning route permits by the Regional transport office of Shimla to the private bus operator. This permit allows the private operator to run the bus service on a specific route in the city. The private operator owns, operates and maintains the small size of the bus fleet. The responsibility of the transport office is to charge the permit fee from the specific operator to run the bus service.

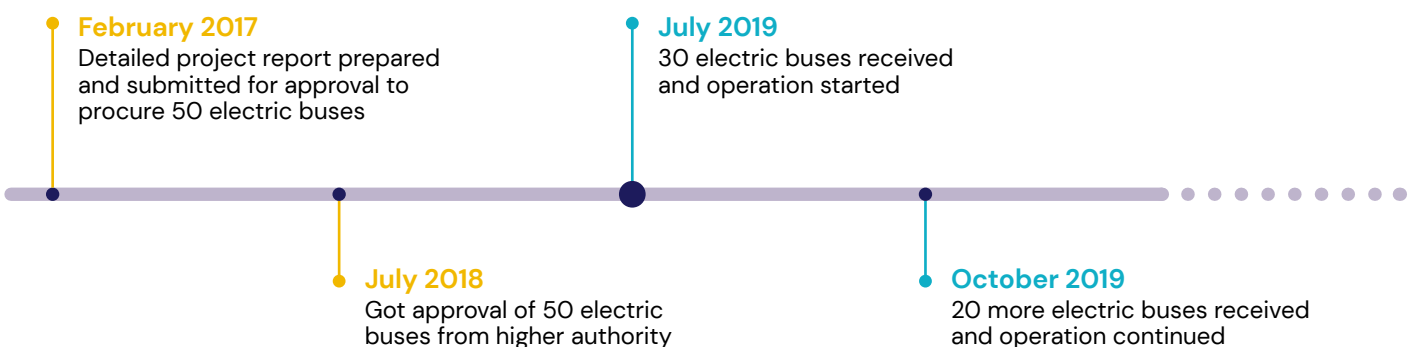
E

The buses are owned, operate and maintained by Himachal Road Transport Corporation (HRTC), which works under the Government of Himachal Pradesh. The procurement of buses has been done by the HRTC and all the buses are registered with HRTC. The operation and maintenance of HRTC buses are solely done by HRTC with the help of their regular staff. The Public Work department of Shimla has taken care of the construction and maintenance of rain shelter cum bus stops. The investment incurred in procuring buses and other infrastructure has been done from the state government grants and budgetary allocation to HRTC. Other sources of revenue like fare box and advertisement revenue have been used as operational expenditure to run the system in the city.



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E-BUS ADOPTION APPROACH



6 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
50 (Foton PMI, model Lito)



Passenger capacity
30 pax



Battery features

Capacity **102 kWh**
Range **168 km/charge**



E-bus Business Model

HRTC owns and operates electric buses in the city of Shimla. From fare collection, scheduling and routing, to providing operation staff and maintenance of electric buses, HRTC is solely responsible for everything. Since HRTC is a government owned authority, all the investment and risk involved in the project of an electric bus are associated with HRTC and Himachal Pradesh State Government. The operation of buses is funded with the help of fares collected from passengers and other funds obtained by HRTC from time to time.

Opportunities and Challenges to Scaling E-Bus Fleets



Opportunities

- Almost 50 percent of people are dependent on bus based public transport, so there is an opportunity to improve existing bus operations with improved customer services and peak hour frequency.
- As the operating cost of existing electric buses is less than Internal combustion engine (ICE) buses, there is an opportunity to increase the share of electric buses. The experience related to operations and maintenance of electric buses for the last four years shall be beneficial to embrace electric bus technology on a larger scale.
- The city is putting its efforts to improve, streamline and expand electric bus operations by getting access to funding and technical support from the Central Government.



Challenges

- There is a lack of detailed technical and operational knowledge on e-buses among private operators which leads to the emergence of risk factors and they still feel that the technology is risky and challenging to operate.
- Due to the city's hilly terrain and steep gradient the output range of the battery is reduced.
- Land space scarcity for charging station is also a challenge in the uptake of the Electric bus project in the city.

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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/>