PESHAWAR, PAKISTAN

URBAN TRANSPORT PROFILE

December 2024

Asian Transport Observatory

Summary

Peshawar, a city of 3.2 million people in Pakistan, faces the challenges of rapid urbanization with a population density of 9,000 persons per sqkm. The city's urban form is characterized by a built-up area of 78 sqkm, with a relatively low number of blocks and intersections compared to the national average. This suggests a less fragmented urban fabric with potentially longer distances between intersections. Peshawar's GDP per capita saw growth between 2000 and 2015, indicating economic development that could influence travel patterns and transport demands.

Regarding transport infrastructure, Peshawar lags behind the national average in road length per capita. However, the city has made significant strides in developing its rapid transit system, with 24 kilometers of BRT operational by 2023. This has placed Peshawar above the national average in rapid transit provision per capita. Despite this progress, the city still needs to expand its public transport network to improve accessibility for its residents, as currently, only 10% have convenient access to public transport.

Transport activity in Peshawar is dominated by private modes of transport, accounting for 80% of trips. This reliance on private vehicles contributes to the city's transport-related emissions, with Peshawar ranking high in CO_2, CH_4, and N_2O emissions among Pakistani and Central and West Asian cities. Promoting sustainable transport modes like walking, cycling, and public transport is crucial to mitigate these environmental impacts and improve air quality. The city's vehicle ownership rate is high, with 243 vehicles per thousand residents, posing further challenges in managing congestion and promoting sustainable mobility.

About the Urban Transport Profiles

The Asian Transport Observatory (ATO) Urban Transport Profiles provide a comprehensive snapshot of urban transport dynamics for 40 cities in the Asia-Pacific region. These profiles compile data from official city reports, relevant sources from reputable research organizations, multilateral development institutions, international experts' reports, secondary studies, and all other research endorsed or guided by city governments. Featured cities are benchmarked against other cities, where data is available, in the region, subregional averages — and in some cases, global cities — offering valuable comparative insights. In cases where data is not available, placeholders for the graphs are retained. Each profile also includes a curated list of relevant urban transport policies and documents, presenting a concise overview of the city's policy framework. By covering a wide range of transport-related indicators, these profiles serve as a critical resource for understanding and improving urban transport systems.

General
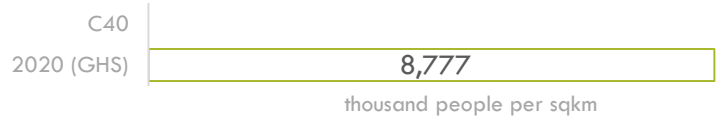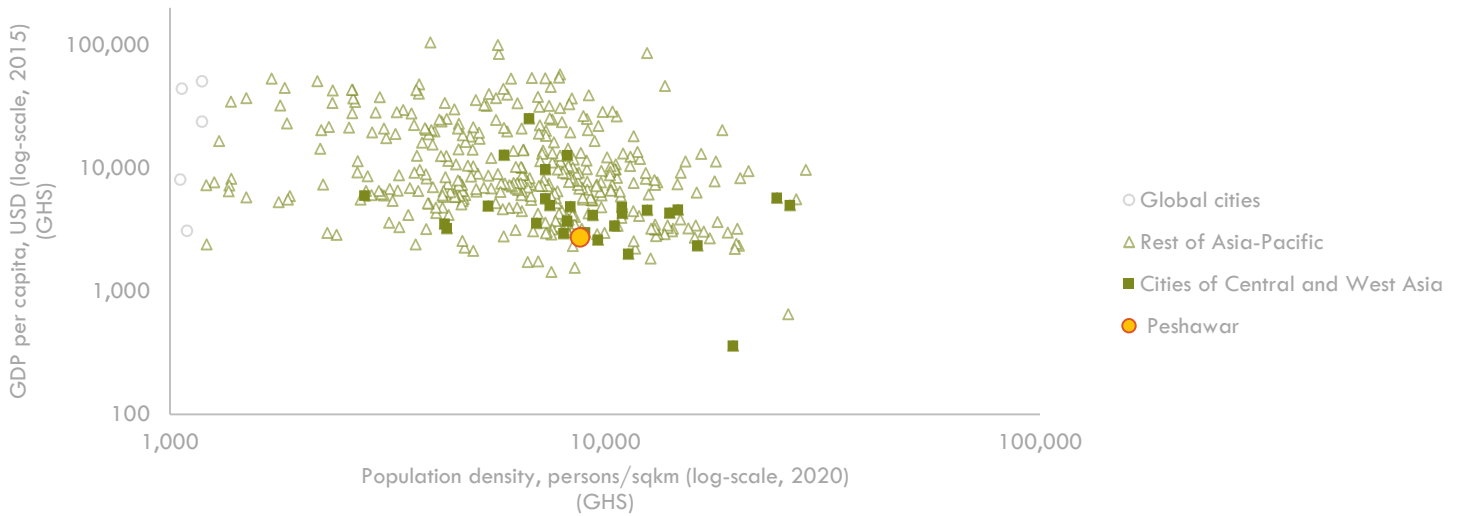
Population 3.2 million
(2020) (GHS)

Land area 367 sqkm
(2015) (GHS)

Population density 9 thousand per sqkm
(2020) (GHS)

GDP per capita 2 thousand USD
(2015) (GHS)

Population density

C40	
2020 (GHS)	8,777

thousand people per sqkm

GDP per capita

2015 (GHS)	2,376
C40	

USD
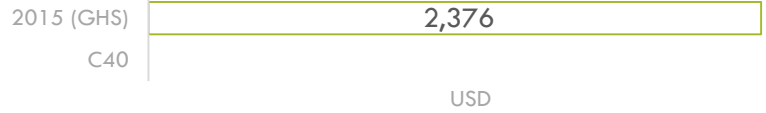
Urban Form and Structure

Builtup area per capita
sqm per capita (GHS)

1990: 28, 2000: 25, 2015: 23, 2020: 24

Builtup area per capita
(GHS)

Mean block density
blocks per sqkm (2020) (ITDP)
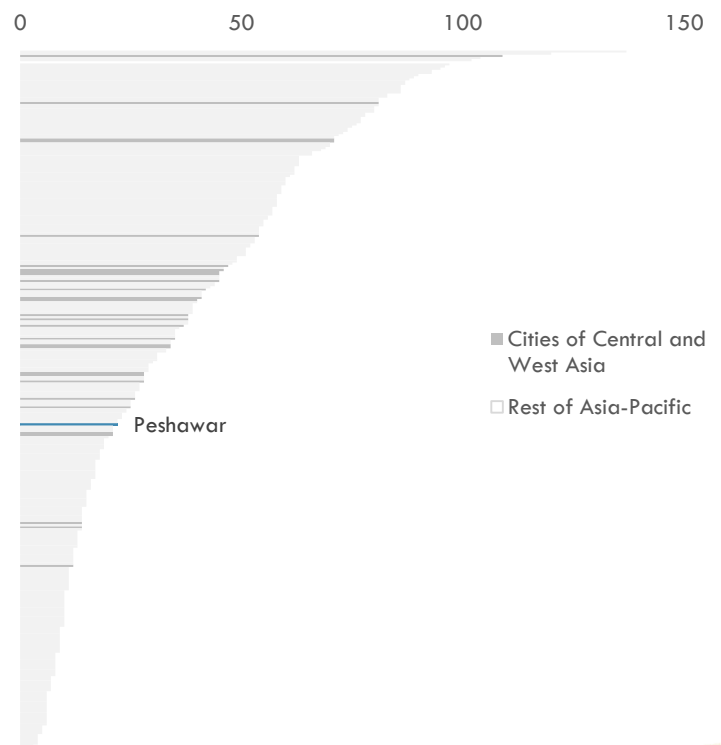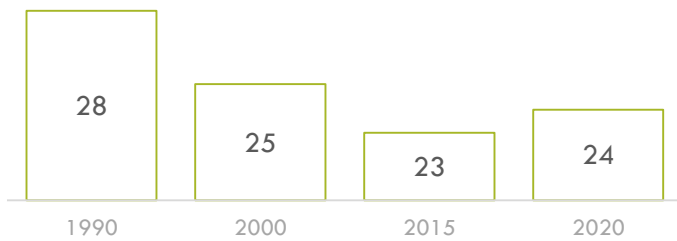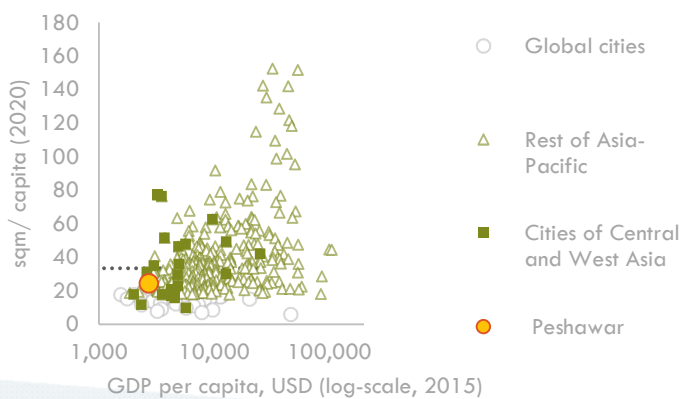
Intersection density (Oke et.al. (2019) (OSM))

intersections per sqkm

Baku 3,136
Tbilisi 1,153
Bishkek 1,075
Tashkent 1,049
Yerevan 1,031
Kabul 957
Lahore 925
Karachi 74
Peshawar
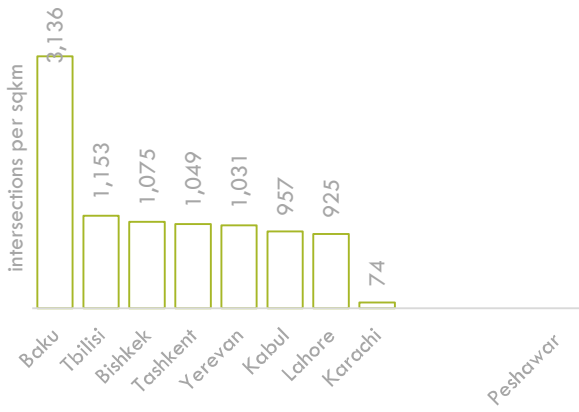
(a) Night time light intensity studies illustrate urban forms and patterns by mapping human activity, infrastructure, and connectivity, offering insights into urban sprawl, density variations, and transport network

Night time light intensity (a)
(GHS)

nano-watt per steradian per square centimetre (2015)

Population density, persons/sqkm (log-scale, 2020)

- ○ Global cities
- △ Rest of Asia-Pacific
- ■ Cities of Central and West Asia
- ● Peshawar
- ········ Central and West Asia average

Urban Transport Infrastructure

Road availability

kilometers per thousand population (2019) (Oke et.al. (OSM) and GHS)

Pakistan (national average)

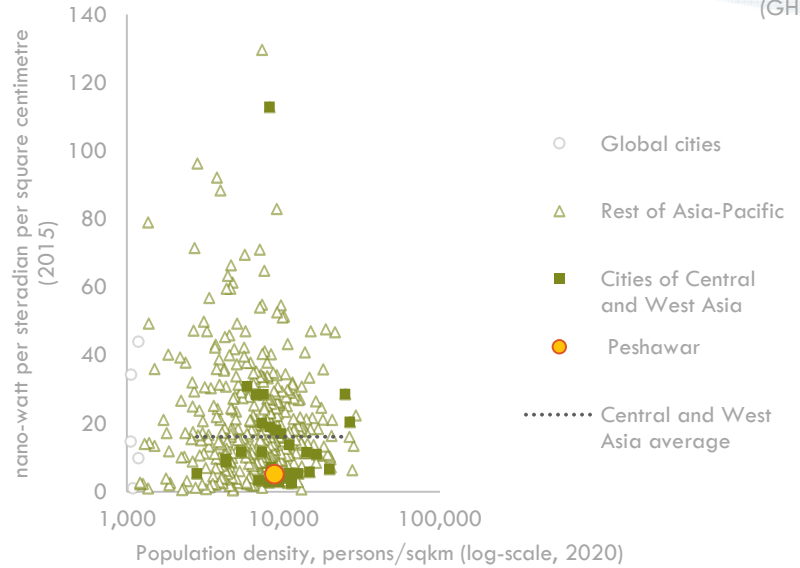- ■ Cities of Central and West Asia
- □ Rest of Asia-Pacific

Road kilometers 462 kilometers
(2009) (Primary data)

Rapid transit infrastructure
(2024) (TE)

- ■ Under construction
- ■ Planned

BRT   LRT   Metro

Rapid transit infrastructure

kilometers (ITDP, Primary data)

■ Metro ■ BRT ■ LRT
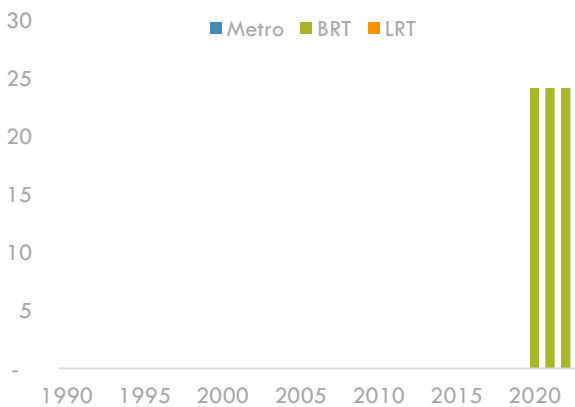
BRT	24 kilometers
LRT	none
Metro	none
Total	24 kilometers

(2023) (ITDP)

Rapid transit availability

kilometers per million urban population (2021) (ITDP, Primary data)

Peshawar

- ■ Cities of Central and West Asia
- □ Rest of Asia-Pacific

Pakistan (national average)

Approximate transit coverage n.d.

4

Transport Activity and Services

VKT per capita

Vehicle-kilometer per capita (2022) (ClimateTrace)

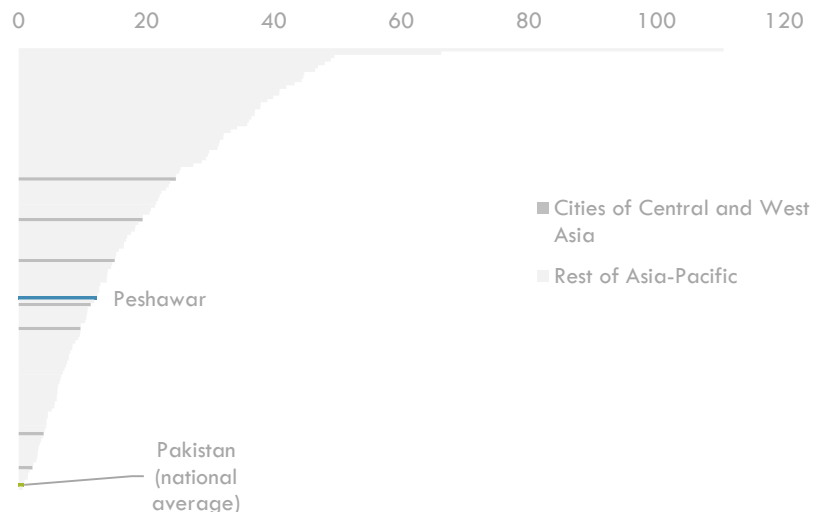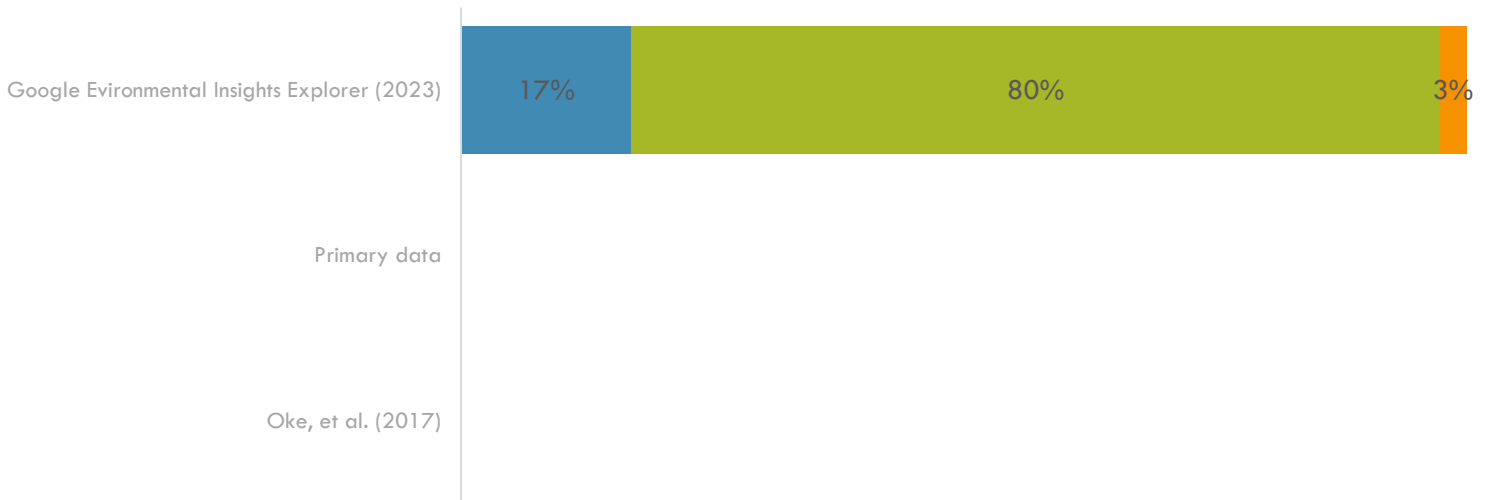

Trips Mode share (b)

Share, %

■ Walking and cycling   ■ Private   ■ Public transport (bus, ferry, informal public transit, etc)

Google Evironmental Insights Explorer (2023)	17%	80%	3%
Primary data			
Oke, et al. (2017)			

(b) The methodologies used for mode share assessments vary across different studies, making direct comparison of results inadvisable. Specifically, the Google Environmental Insights Explorer derives its assessments from mobile data analysis, while primary data studies typically rely on survey-based approaches. In contrast, the study by Oke et al. utilizes a combination of secondary data sources.

Metro ridership n.d.

Congestion ranking n.d.

Congestion level

Percent increased travel time vs. uncongested conditions (2021) (TomTom)

■ Other cities

Vehicle motorization

Vehicles per thousand population (Primary data)

- ■ Peshawar
- ■ Cities in Central and West Asia
- ■ Rest of Asia-Pacific

Peshawar, 2018
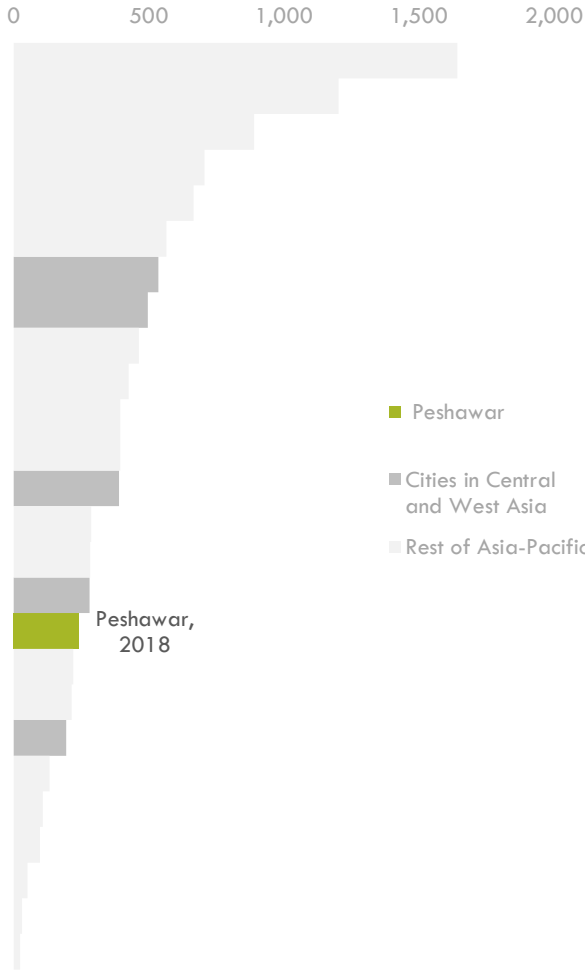
Vehicles registered (c)

Thousand vehicles (Primary data)

Vehicles considered: no further information
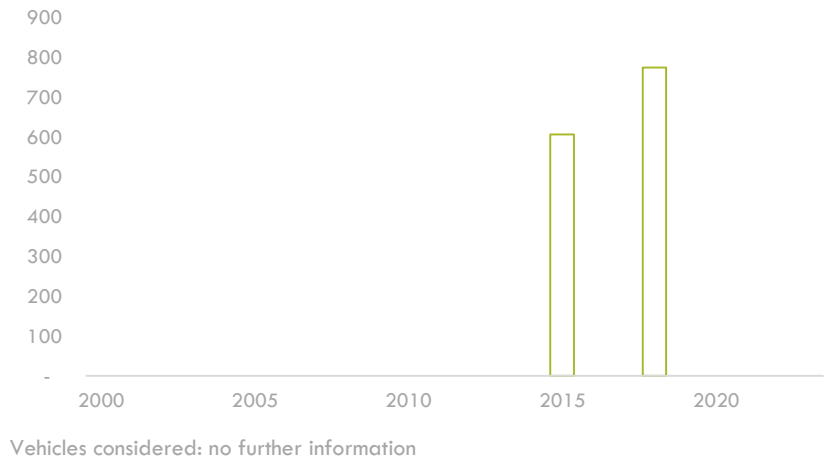
Bus fleet (operational)

Bus (and other public transport) fleet (Primary data)
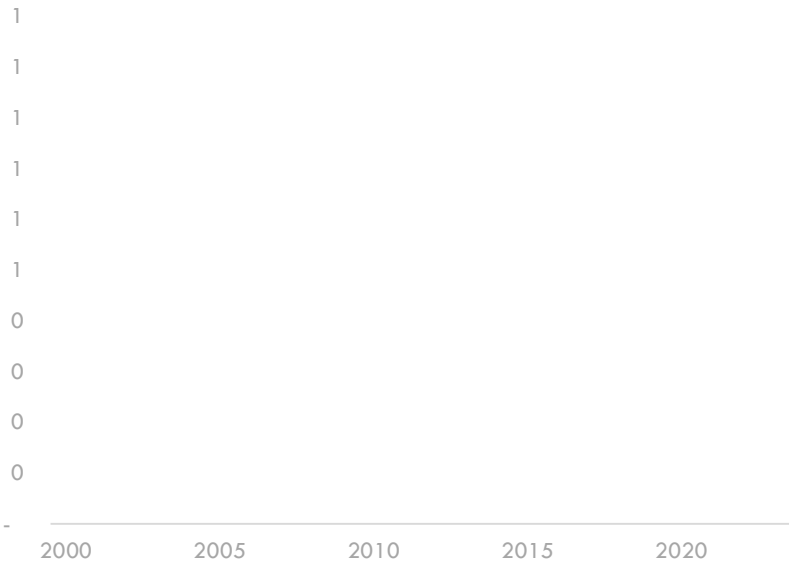
(c) It should be noted that, in most cases, scrapped vehicles are not de-registered, which may result in slightly inflated numbers.

Urban Access

Access to urban public transport

Share of population with convenient access to public transport (2023) (CIESIN)

- ○ Global cities
- △ Rest of Asia-Pacific
- ■ Cities of Central and West Asia
- ⋯⋯ Central and West Asia average
- ● Peshawar

GDP per capita, USD (log-scale, 2015)
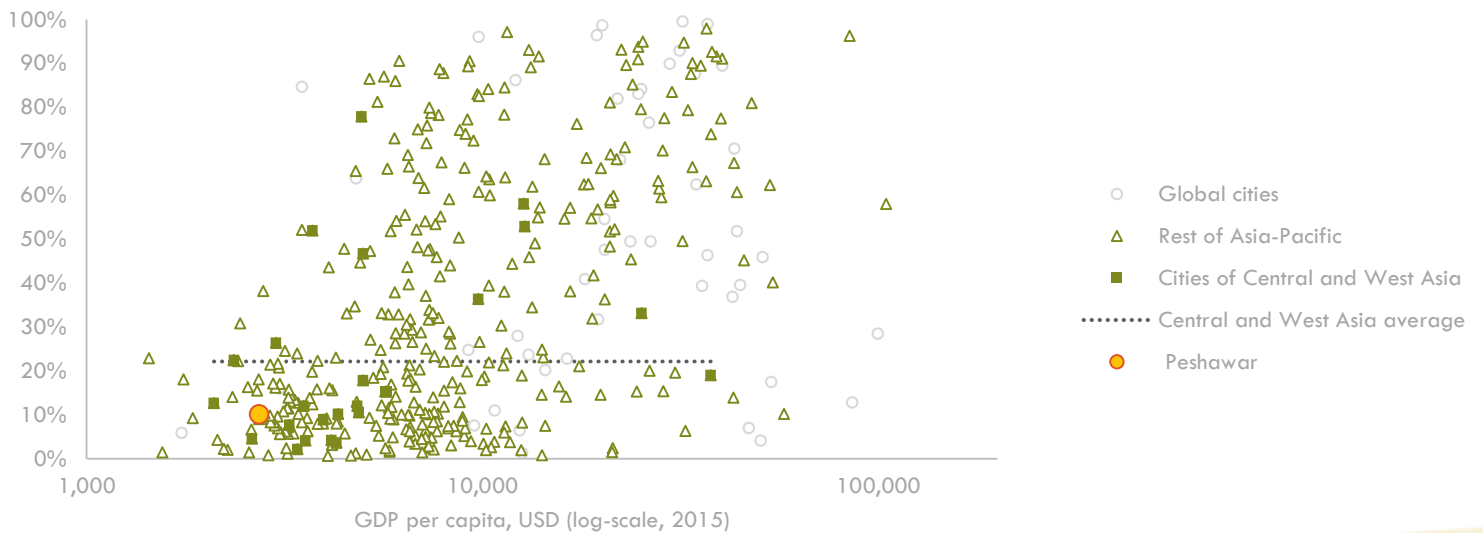
Access to urban public transport (d) - by source

Share of population with convenient access to public transport

2017-2019 (UNESCAP - SUTI)	
2020 (UN Habitat)	**83%**
2023 (CIESIN)	10%

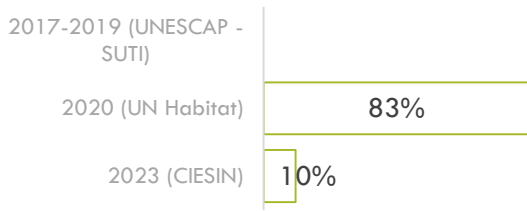(d) "Access to urban public transport" is computed as share of population who live within a walking distance (along a street network) of 500m to a low capacity public transport system (eg bus, tram) and 1000m to a high capacity public transport system (eg trains, ferries, etc). Only public transport stops which are mapped are included in the analysis which may include both formal and informal stops. Many cities (mostly in the developing countries) have informal public transport systems which are not fully mapped - meaning that they may record higher levels of access to public transport than reported in this dataset.
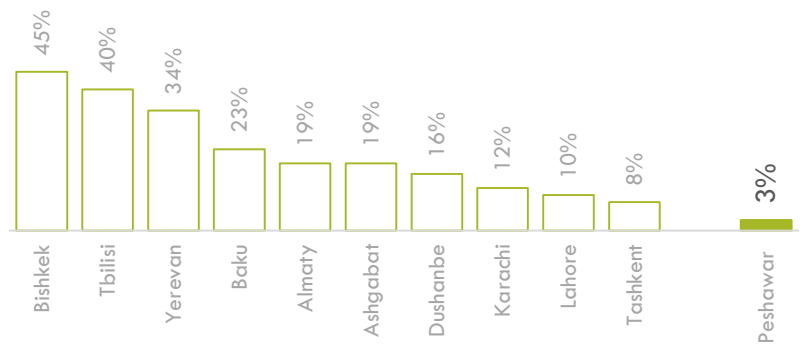
(e) People Near Services measures the percentage of the city's population living within a 1km walk of both healthcare and education. These services are especially vital for babies, toddlers, and their caregivers, who should be able to reach them on foot.

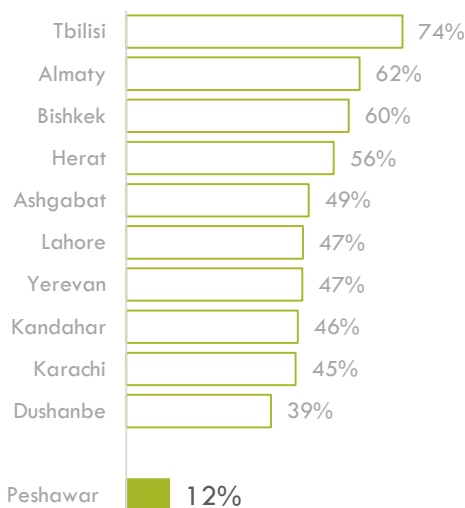(f) Percentage of the city's population that lives within 100m of a car-free place. These car-free places include pedestrian-only alleyways, nature trails, playgrounds, pedestrianized squares, and anywhere else that is not used by cars and trucks (except, in some cases, emergency vehicles).

People near services (both healthcare and schools) (e)

(Share of population) vs. highest 10 cities in Central and West Asia (2020) (ITDP)

City	Value
Bishkek	81%
Tbilisi	70%
Yerevan	68%
Karachi	61%
Baku	57%
Hyderabad (Pakistan)	54%
Dushanbe	47%
Ashgabat	46%
Samarkand	37%
Almaty	36%
Peshawar	8%

People near car-free places (f)

(Share of population) vs. highest 10 cities in Central and West Asia (2020) (ITDP)

City	Value
Bishkek	45%
Tbilisi	40%
Yerevan	34%
Baku	23%
Almaty	19%
Ashgabat	19%
Dushanbe	16%
Karachi	12%
Lahore	10%
Tashkent	8%
Peshawar	3%

People near open public space

(Share of population) vs. highest 10 cities in Central and West Asia (2020) (UN Habitat)

City	Value
Tbilisi	74%
Almaty	62%
Bishkek	60%
Herat	56%
Ashgabat	49%
Lahore	47%
Yerevan	47%
Kandahar	46%
Karachi	45%
Dushanbe	39%
Peshawar	12%

People near protected bikelanes

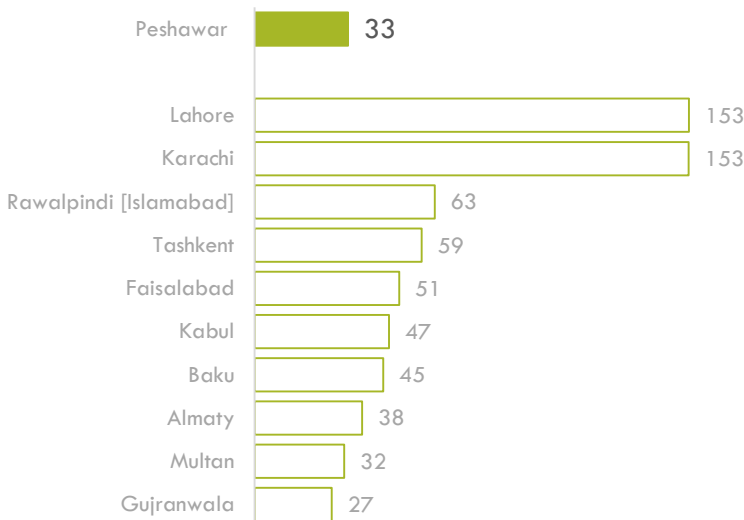(Share of population) vs. highest 10 cities in Central and West Asia (2020) (ITDP)

City	Value
Tbilisi	7%
Almaty	5%
Baku	2%
Tashkent	1%
Rawalpindi [Islamabad]	0%
Peshawar	
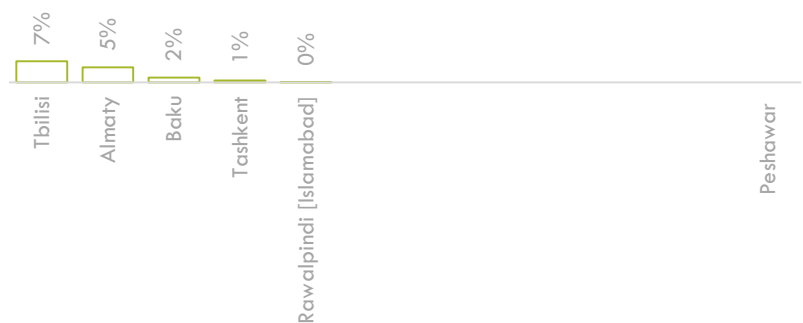
Transport externalities

Road transport - CO2 emissions

Thousand tonnes (2022) (ClimateTrace)

- △ Rest of Asia-Pacific
- ■ Cities of Central and West Asia
- ● Peshawar

GDP per capita, USD (2015)
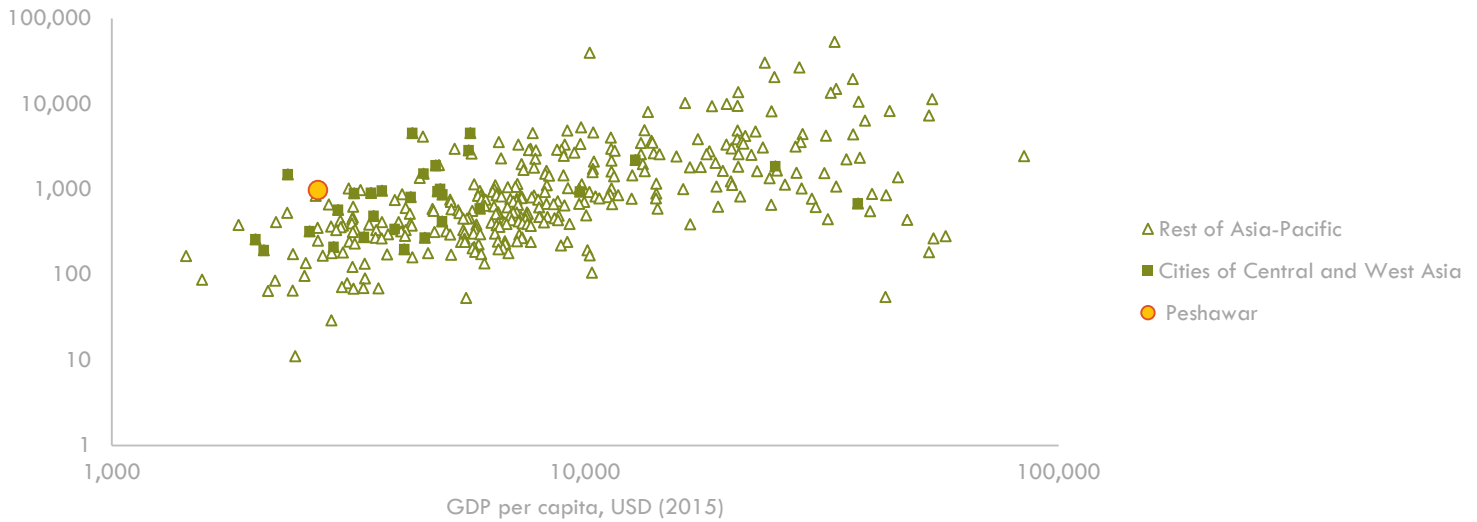
Road transport - N2O emissions

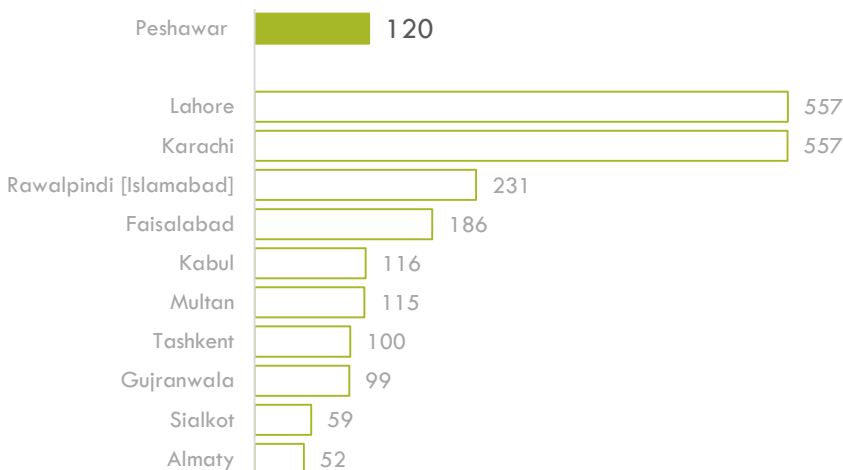Tonnes (2022) vs. highest 10 cities in Central and West Asia (ClimateTrace)

City	Value
Peshawar	33
Lahore	153
Karachi	153
Rawalpindi [Islamabad]	63
Tashkent	59
Faisalabad	51
Kabul	47
Baku	45
Almaty	38
Multan	32
Gujranwala	27

Population exposure to disasters

Share of population (2015) (GHS)

Exposed to floods: 6%

Exposed to storm surges

Road transport - CH4 emissions

Tonnes (2022) vs. highest 10 cities in Central and West Asia (ClimateTrace)

City	Value
Peshawar	120
Lahore	557
Karachi	557
Rawalpindi [Islamabad]	231
Faisalabad	186
Kabul	116
Multan	115
Tashkent	100
Gujranwala	99
Sialkot	59
Almaty	52

Urban built-up area exposure to disasters

Share of urban area (2020) (GHS)

Exposed to floods: 7%

Exposed to earthquakes: 100%
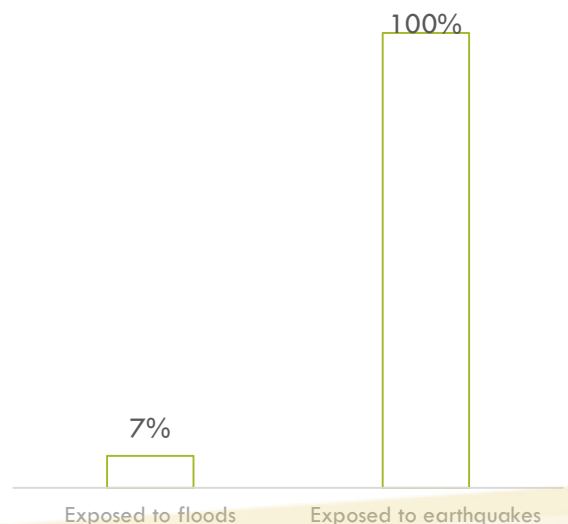
Transport PM 2.5 emissions
(GHS)
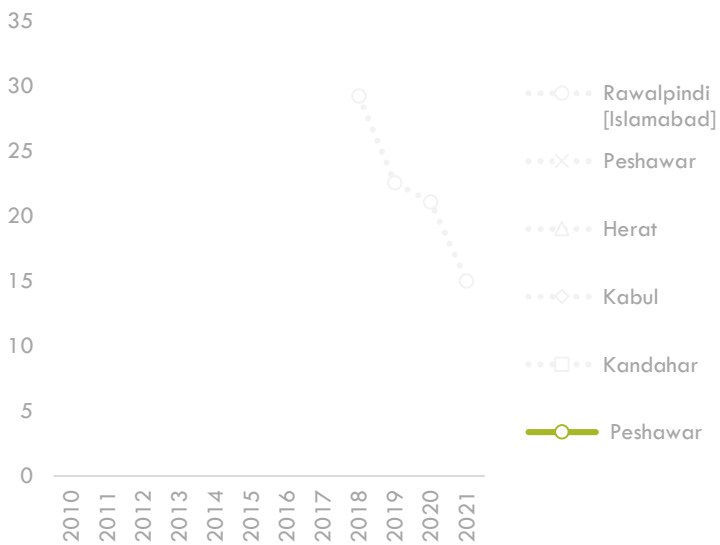
Grams per capita (log-scale, 2015)

GDP per capita, USD (log-scale, 2015)

- ○ Global cities
- △ Rest of Asia-Pacific
- ■ Cities of Central and West Asia
- ● Peshawar

NO2 concentration
ug/m3 (vs. highest 5 cities in Central and West Asia) (WHO)

- ○ Rawalpindi [Islamabad]
- × Peshawar
- △ Herat
- ◇ Kabul
- □ Kandahar
- ━○━ Peshawar

PM 2.5 concentration
ug/m3 (vs. highest 5 cities in Central and West Asia) (WHO)

- ○ Lahore
- × Kabul
- △ Peshawar
- ◇ Dushanbe
- □ Karachi
- ━○━ Peshawar

Road crash fatality rate
Deaths per 100,000 population

12

Peshawar (Primary data) — Peshawar (ESCAP-SUTI) — Pakistan (2021)
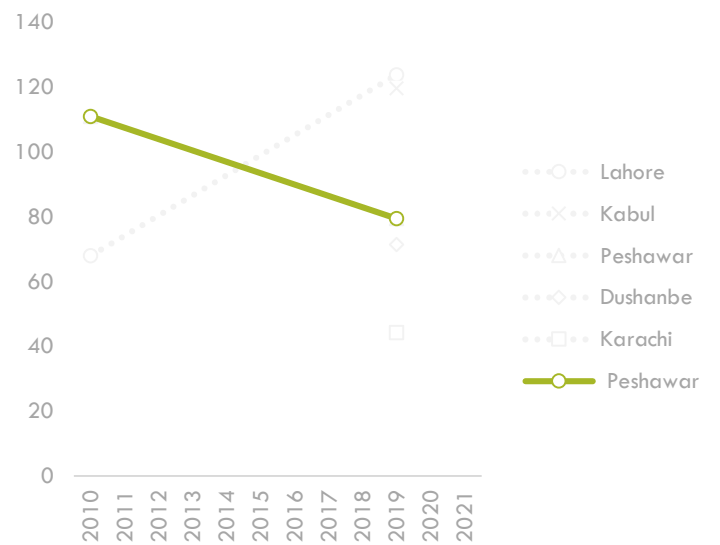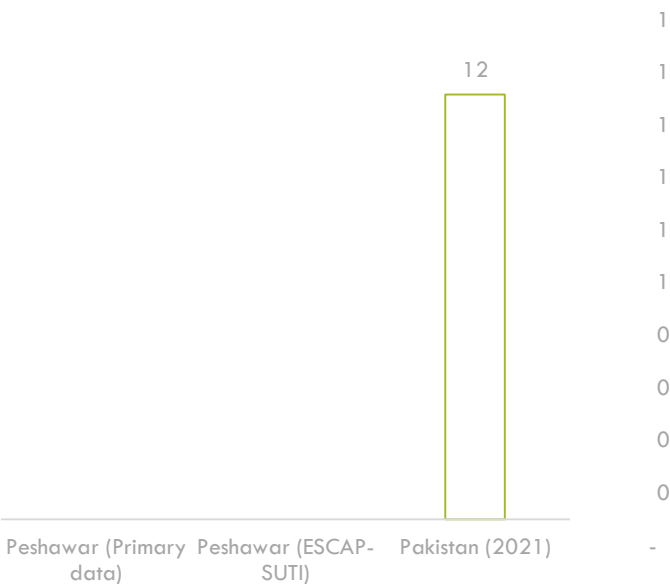
Road crash fatality rate
Deaths per 100,000 population (Primary data)
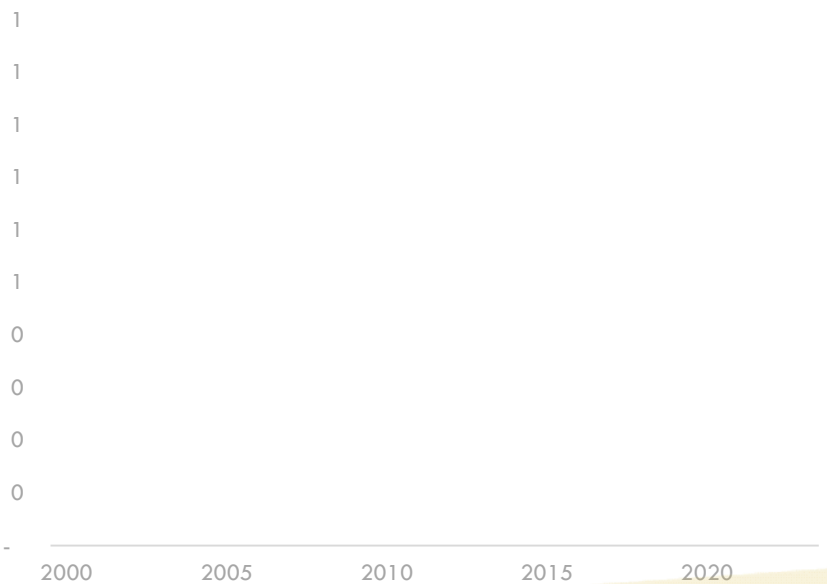
Transport related Indices

Container port performance index

Index is resultant of the sum of a weighted average of indices for each of the five vessel sizes: feeders (<1,500 TEUs), intra-regional (1,500–5,000 TEUs), intermediate (5,000–8,500 TEUs), neo-Panamax (8,500–13,500 TEUs), and ultra-large container carriers (>13,500 TEU)

Peshawar n.d.

Critical Infrastructures Spatial Index for the transportation sector

CISI is an index that spatially explicit indicates the coverage or lack of transport infrastructure. The CISI is expressed in a dimensionless value ranging between 0 (no CI intensity) and 1 (highest CI intensity). The index aggregates high resolution geospatial information on multiple CI assets per CI system

Peshawar 0.02/1.00
(2020) (GHS)

SUTI Geometric Mean

The geometric mean in the Sustainable Urban Transport Index (SUTI) by UNESCAP is a mathematical approach to aggregate scores across its 10 sub-indicators, including public transport ridership, safety, affordability, air quality, and access to transport
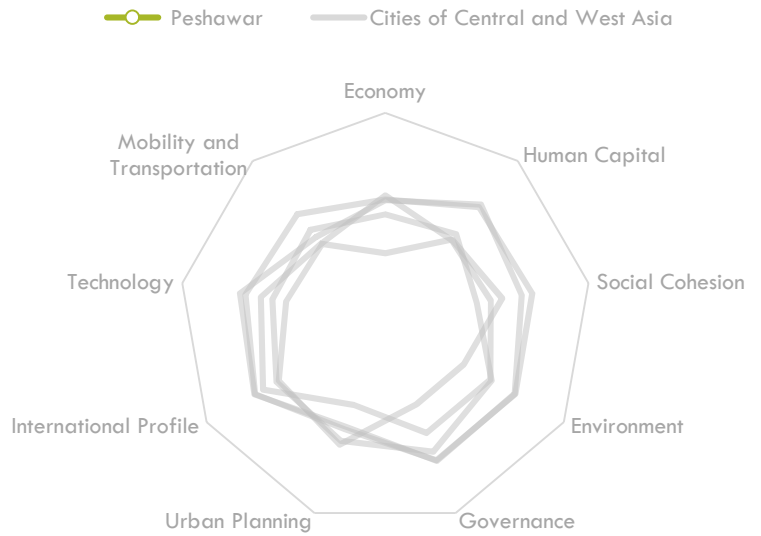
Peshawar n.d.

Cities in Motion index ranking

The Cities in Motion Index (CIMI) is a composite indicator evaluating cities across nine dimensions—governance, urban planning, technology, environment, international profile, social cohesion, human capital, mobility, and economy—focusing on sustainability and quality of life. It uses a weighted aggregation model to combine sub-indicators for a holistic assessment of urban performance

Peshawar n.d.

Cities in Motion index ranking by subcomponent

Ranking (vs. other Cities of Central and West Asia) (2024) (IESE)

Transport relevant policy documents

Year published	Document name
1989	Building By Laws
2010	City Development Strategy - Peshawar Vol. 1
2010	City Development Strategy - Peshawar Vol. 2
2017	Peshawar Development Authority Act
2017	Peshawar Sustainable Bus Rapid Transit Corridor Project
2018	Traffic Management Plan For Four Cities (Peshawar, Mardan, Kohat& Abbottabad)
2019	Proposed Land Use Plan of District Peshawar (Draft)

References

ATO Urban Policy Tracker	Asian Transport Outlook (ATO). (2024). ATO Urban Policy Tracker. https://asiantransportoutlook.com/
C40	C40. (2024). Greenhouse gas emissions interactive dashboard. https://www.c40knowledgehub.org/s/article/C40-cities-greenhouse-gas-emissions-interactive-dashboard?language=en_US
CIESIN	CIESIN. (2023). SDG Indicator 11.2.1: Urban Access to Public Transport, 2023 Release. https://www.earthdata.nasa.gov/data/catalog/sedac-ciesin-sedac-sdgi-uapt-2023-2023.00
ClimateTrace	Climate Trace. (2024). Data Downloads. https://climatetrace.org/data
GHS	GHS. (2024). GHSL - Global Human Settlement Layer. https://human-settlement.emergency.copernicus.eu/ghs_ucdb_2024.php
Google Evironmental Explorer	Google. (2024). Environmental Insights Explorer. https://insights.sustainability.google/places/ChIJbTgmYNLIlzMR0HiSrNoj7V8?ty=2023&hl=en-US
IESE	IESE. (2024). IESE Cities in Motion Index. https://www.iese.edu/media/research/pdfs/ST-0649-E.pdf
ITDP	ITDP. (2024). The Atlas of Sustainable City Transport. https://itdp.org/publication/the-atlas-of-sustainable-city-transport/
Oke et al.	Oke et al. (2019). A novel global urban typology framework for sustainable mobility futures. https://iopscience.iop.org/article/10.1088/1748-9326/ab22c7#erlab22c7s3
OSM	OSM. (n.d.). Open Stret Map. https://www.openstreetmap.org/#map=4/21.84/82.79
Primary data	This includes city official reports or MDB/ Research organisation/ Third party report endorced/ accepted/ guided by the city government
TE	Transport Politic. (n.d.). Transit Explorer Global Data. https://www.thetransportpolitic.com/transit-explorer/transit-explorer-data-and-sources/
TomTom	Tom Tom. (2023). Traffic index Ranking. https://www.tomtom.com/traffic-index/ranking/
UITP - GUMI	UITP. (2022). Global Urban Mobility Indicators 2022. https://www.uitp.org/publications/global-urban-mobility-indicators-2022
UN Habitat	UN Habitat. (2021). Urban Indicators Database. https://data.unhabitat.org/
UNESCAP - SUTI	UNESCAP. (n.d.). Sustainable Urban Transport Index (SUTI). https://www.unescap.org/our-work/transport/suti
WHO	WHO. (2024). WHO Ambient Air quality database. https://www.who.int/data/gho/data/themes/air-pollution/who-air-quality-database
WB	WB. (2024). The Container Port Performance Index 2023. https://documents1.worldbank.org/curated/en/099060324114539683/pdf/P175833138923008716e641a5ea7b90e0e6.pdf