



Status Summary 2023: Road Safety Risk Factors

Bloomberg Philanthropies Initiative for Global Road Safety

KUMASI, GHANA



JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

International
Injury Research Unit

Beginning in 2020, the Johns Hopkins International Injury Research Unit, through the Bloomberg Philanthropies Initiative for Global Road Safety, has been conducting observations in Kumasi to reduce road injuries and fatalities.

The following report highlights results from an ongoing study that captured observations of speed as a risk factor.* The results are based on data collected between November 2020 and September 2023.

*This study observed helmet use and seat-belt and child restraint use and shared findings in the 2022 Status Summary Report.

Speeding among all observed vehicles was very high



Speeding was highest among SUVs



Speeding was most common on weekends



The mean speed among speeding motorcycles was high

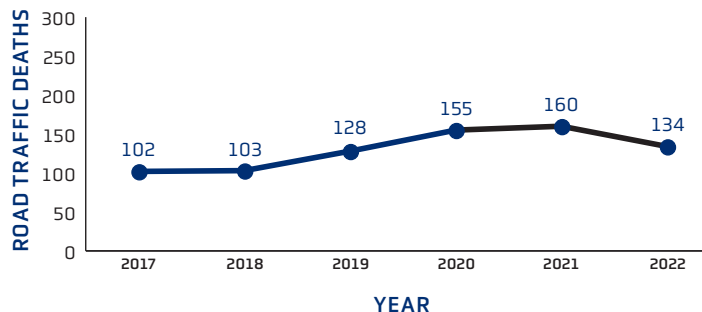


Motorcycle speeding was more common on weekends

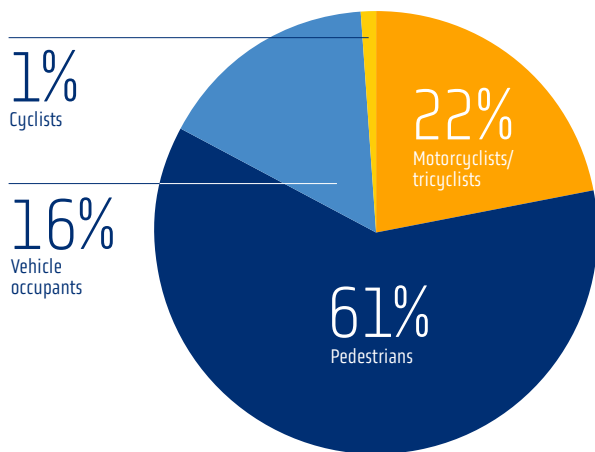


Road Traffic Fatalities in Kumasi

Road traffic deaths have been increasing since 2017, with a decrease in 2022



Deaths by road user, 2022



Vulnerable road users (motorcyclists/tricyclists, pedestrians, and cyclists) accounted for 84% of road traffic fatalities in 2022.

Note: Data from existing sources was used for the outcome data indicators. Police crash data systems are prone to underreporting.

Recommendations

Motor Traffic and Transport Department, Ghana Police Service

- Enhance enforcement of:
 - Speed limits across the city including on local and collector roads.
- Make enforcement operations regular, visible, and widespread.

Department of Urban Roads and Kumasi Metropolitan Assembly, Department of Transport

- Implement a maximum speed limit of 30 km/h on roadways in designated areas where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas.
- Implement traffic-calming measures, such as bumps, rumble strips, safe speed signage, and designation of low-speed areas to protect vulnerable road users.

National Road Safety Authority and Road Safety Advisory Board, Kumasi

- Coordinate mass-media campaigns with enforcement efforts, focusing on:
 - Speed reduction and consequences of speeding, particularly among motorcyclists, aligned with the messaging of the January 2023 mass-media campaigns.

Speed in Kumasi

Higher speeds lead to a greater risk of a crash and a higher probability of serious injury. An increase of 1 km/h in average vehicle speed results in an increase of 3% in the incidence of crashes resulting in injury and an increase of 4%–5% in the incidence of fatal crashes.*

*World Health Organization. (2017). *Save LIVES: A road safety technical package*. Geneva.



Speeding among all observed vehicles was very high in October 2023 (35%).



Speeding was higher over weekends (40%) compared with weekdays (32%).



Speeding was higher on local and collector roads (36%) compared with arterial roads (32%).



Applying the global recommendation of 30 km/h for local and collector roads and 50 km/h for arterial roads, 89% of the observed vehicles on local and collector roads were traveling at unsafe speeds.

Functional classification of roads

Arterial road: These are roadways with high traffic volume; they provide a high degree of mobility and carry a high proportion of travel for long distance trips. These roadways carry the major portion of trips entering and leaving an activity center, as well as the majority of movements that either go directly through or bypass the area.

Collector road: These roads collect traffic from local roads and connect to arterial roadways. They penetrate neighborhoods and communities, collecting and distributing traffic between neighborhoods and arterial roads. Collector routes are shorter than arterial but longer than local roads.

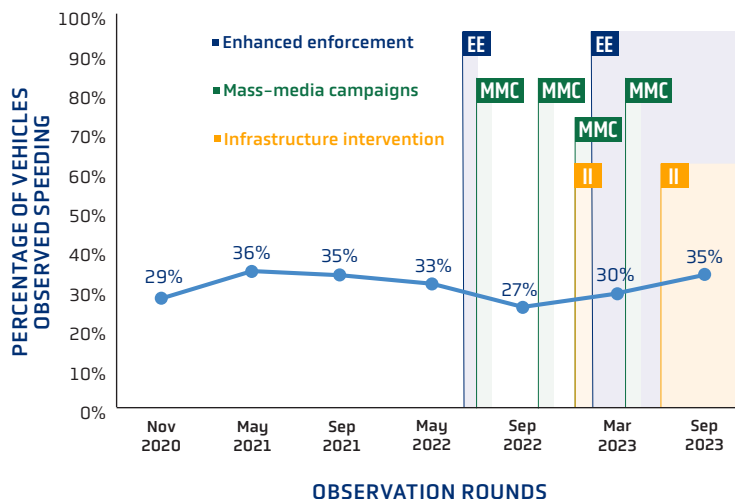
Collector roads provide less mobility than arterials at lower speeds and for shorter distances

Local road: These roads provide limited mobility and are the primary access to residential areas, businesses, farms and other local areas.

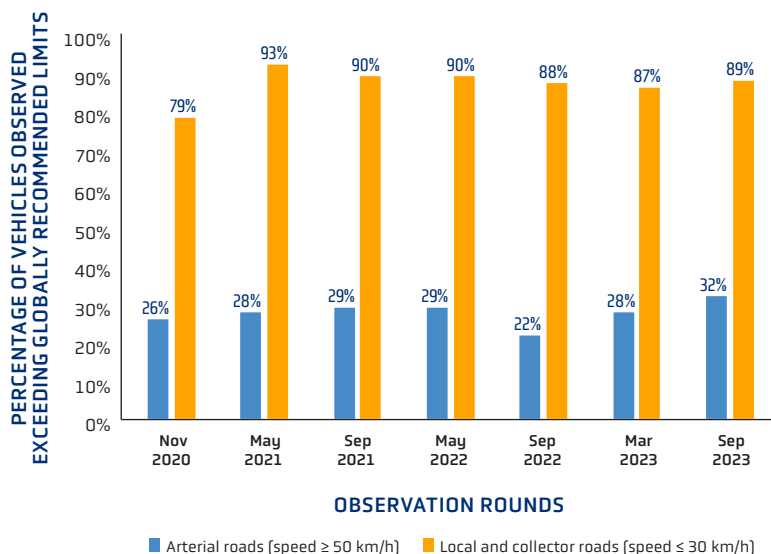
The posted speed limit in Kumasi is 50 km/h for all road types.

Key findings on Speed in Kumasi

After a steady drop in 2021, speeding has recently increased to 35%



Speeding was consistently higher on local and collector roads



Recommendations

Motor Traffic and Transport Department, Ghana Police Service

- Enhance enforcement of speed limits across the city focusing on:
 - Local and collector roads.
 - All days of the week.

Department of Urban Roads and Kumasi Metropolitan Assembly, Department of Transport

- Implement a maximum speed limit of 30 km/h on roadways in designated areas where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas.
- Implement traffic-calming measures, such as speed bumps, rumble strips, safe speed signage, and designation of low-speed areas to protect vulnerable road users.

National Road Safety Authority and Road Safety Advisory Board, Kumasi

- Implement mass-media campaigns in coordination with enforcement efforts, focusing on the dangers of speeding.

Speeding in African Cities (2023)

Guidance notes:

Prevalence: The % of speeding from the latest round of observational data on speeding.

Mean speed: Mean and standard deviation of speed in km/h from the latest round of observational data on speeding.

Median speed: Median speed in km/h from the latest round of observational data on speeding.

% change: Magnitude and direction of change in the prevalence of speeding between the last two rounds.

Speeding: The arrow indicates the change in direction between the last two rounds of speed observations.

Kumasi

Prevalence: 35%

Mean speed: 64 (± 12) km/h

Median speed: 60 km/h

% change: 17% increase

Speeding \uparrow

Accra

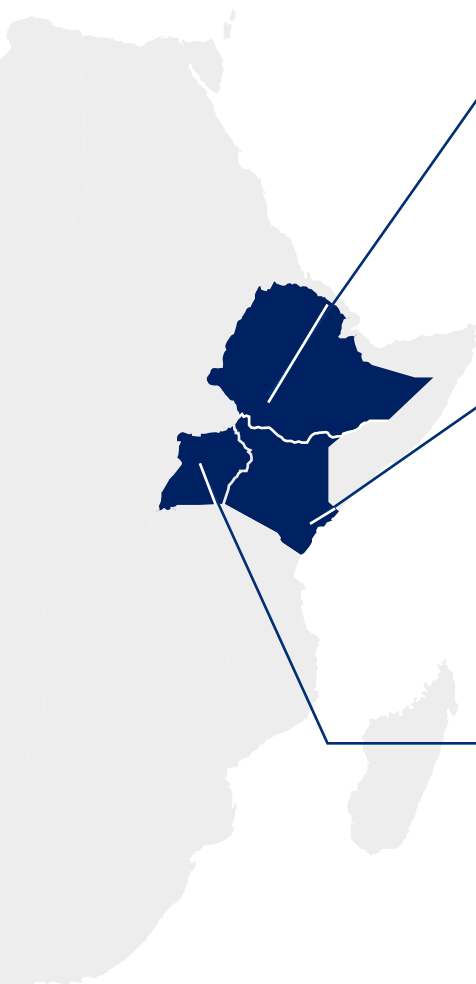
Prevalence: 47%

Mean speed: 70 (± 14) km/h

Median speed: 68 km/h

% change: 4% decrease

Speeding \downarrow



Addis Ababa

Prevalence: 52%
Mean speed: 58 (± 15) km/h
Median speed: 58 km/h
% change: 2% increase
Speeding \uparrow

Mombasa

Prevalence: 26%
Mean speed: 58 (± 7) km/h
Median speed: 56 km/h
% change: 4% decrease
Speeding \downarrow

Kampala

Prevalence: 5%
Mean speed: 57 (± 6) km/h
Median speed: 55 km/h
% change: 17% decrease
Speeding \downarrow

Speed among Motorcycles in Kumasi

Globally, around 30% of all road crash deaths involve powered two- and three-wheeled vehicles.¹ Powered two-wheelers or motorcycles are a dominant mode of transportation in low- and middle-income countries, including within the African region.^{1,2} This is because of their compact size, fuel efficiency, and easy maneuvering during traffic congestion.² However, data on motorcycle use and speeding trends in a specific city is limited.

1 World Health Organization. (2022, October 10). New global guidelines to curb motorcycle crash deaths. Retrieved from <https://www.who.int/news/item/10-10-2022-new-global-guidelines-to-curb-motorcycle-crash-deaths>.

2 Ospina-Mateus, H., Quintana Jiménez, L. A., Lopez-Valdes, F. J., & Salas-Navarro, K. (2019). Bibliometric analysis in motorcycle accident research: A global overview. *Scientometrics*, 121(2), 793–815.



Over 39% of motorcycles were observed exceeding the posted speed limit.



The mean speed among speeding motorcycles was high (48 km/h).



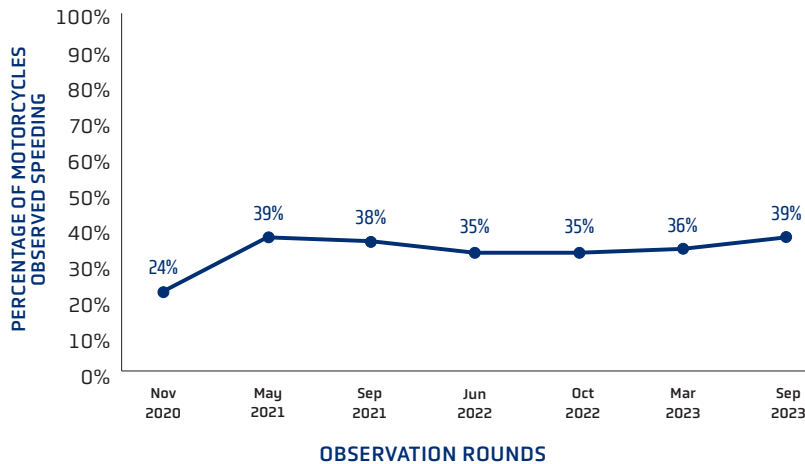
Speeding among motorcycles was more common on weekends (45%) compared with weekdays (36%).



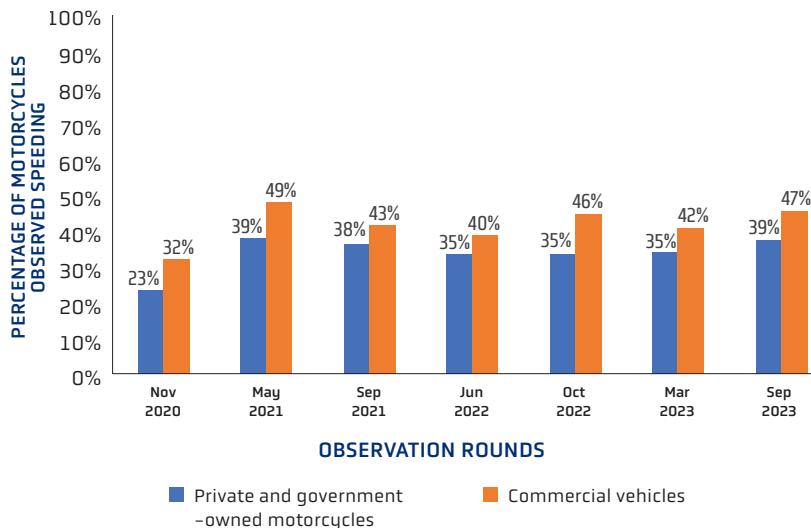
Over 29% of the motorcycles observed speeding were traveling >15 km/h above the posted speed limit.

Key Findings on Speed among Motorcycles in Kumasi

Speeding among motorcycles remains very high



Speeding was higher among commercial motorcycles compared with private and government-owned motorcycles



*Traffic calming measures for four-wheeled vehicles are hazardous for motorcyclists. Speed control measures therefore need to allow motorcyclists to navigate the traffic calming measure safely. Ref: World Health Organization. (2022). *Powered two- and three-wheeler safety: A road safety manual for decision-makers and practitioners* (2nd ed.). Geneva.

Recommendations

Motor Traffic and Transport Department, Ghana Police Service

- Enhance speed enforcement efforts on motorcyclists with a focus on:
 - Weekends.
 - Commercial motorcycles.
 - All road types.
- Enforce the use of reflective clothing by motorcyclists to avoid “looked-but-failed-to-see” crashes where car drivers misjudge the approaching speed of motorcycles.
- Make enforcement operations regular, visible, and widespread.

Department of Urban Roads and Kumasi Metropolitan Assembly, Department of Transport

- Implement low-speed zones for motorcycles in urban areas.*
- Implement a maximum speed limit of 30 km/h on roadways in designated areas where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas.
- Implement motorcycle specific infrastructure and road design interventions such as exclusive motorcycle lanes, horizontal markings on the road with adequate grip or skid resistance, divergence markings, and lane-based motorcycle waiting zones at intersections.

National Road Safety Authority and Road Safety Advisory Board, Kumasi

- Implement mass-media campaigns in coordination with increased enforcement efforts focusing on the dangers of speeding, especially among motorcycle drivers.



Busy street within the heart of Kumasi, Ghana.

METHODS

Since 2020, the Johns Hopkins International Injury Research Unit has partnered with the Council for Scientific and Industrial Research–Building and Road Research Institute (CSIR–BRRI), Ghana to conduct roadside observations. The methods for these findings were developed by the Johns Hopkins International Injury Research Unit and implemented in collaboration with the CSIR–BRRI. This report provides results from twice-a-year cross-sectional observational surveys that represent population-level [citywide] prevalence of speed as an important road safety risk factor, to show changes over time. Across the seven rounds of observations made in the current phase, over 384,000 observations have been made for speed.

Observation sites were randomly selected, conditional on the safety of observers. There were 15 observation sites for speed, and a standardized protocol for data collection was used with vehicles selected for observation in a systematic quasi-random fixed sequence. Observations were performed between 7:30 a.m. and 7:00 p.m. on both weekdays and weekend days. The methods

were designed to estimate citywide prevalence and cannot provide insights into interventions conducted in specific locations in the city. The regional team and data management team at Johns Hopkins International Injury Research Unit reviewed and cleaned the data to perform the analyses available in this report.

ACKNOWLEDGMENTS

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