



Kampala ANNUAL ROAD SAFETY REPORT 2022



In collaboration with:
The Uganda Police Force, Bloomberg Philanthropies and Vital Strategies



Bloomberg Philanthropies

Initiative for Global
Road Safety

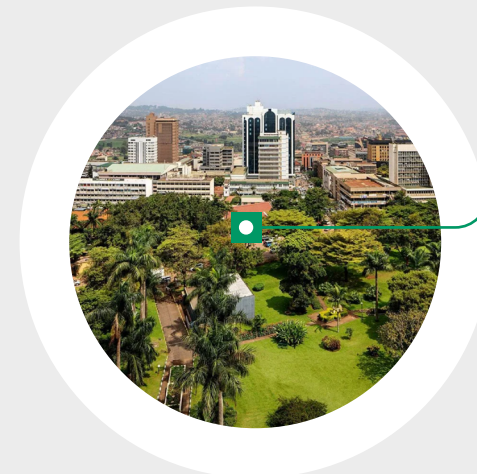
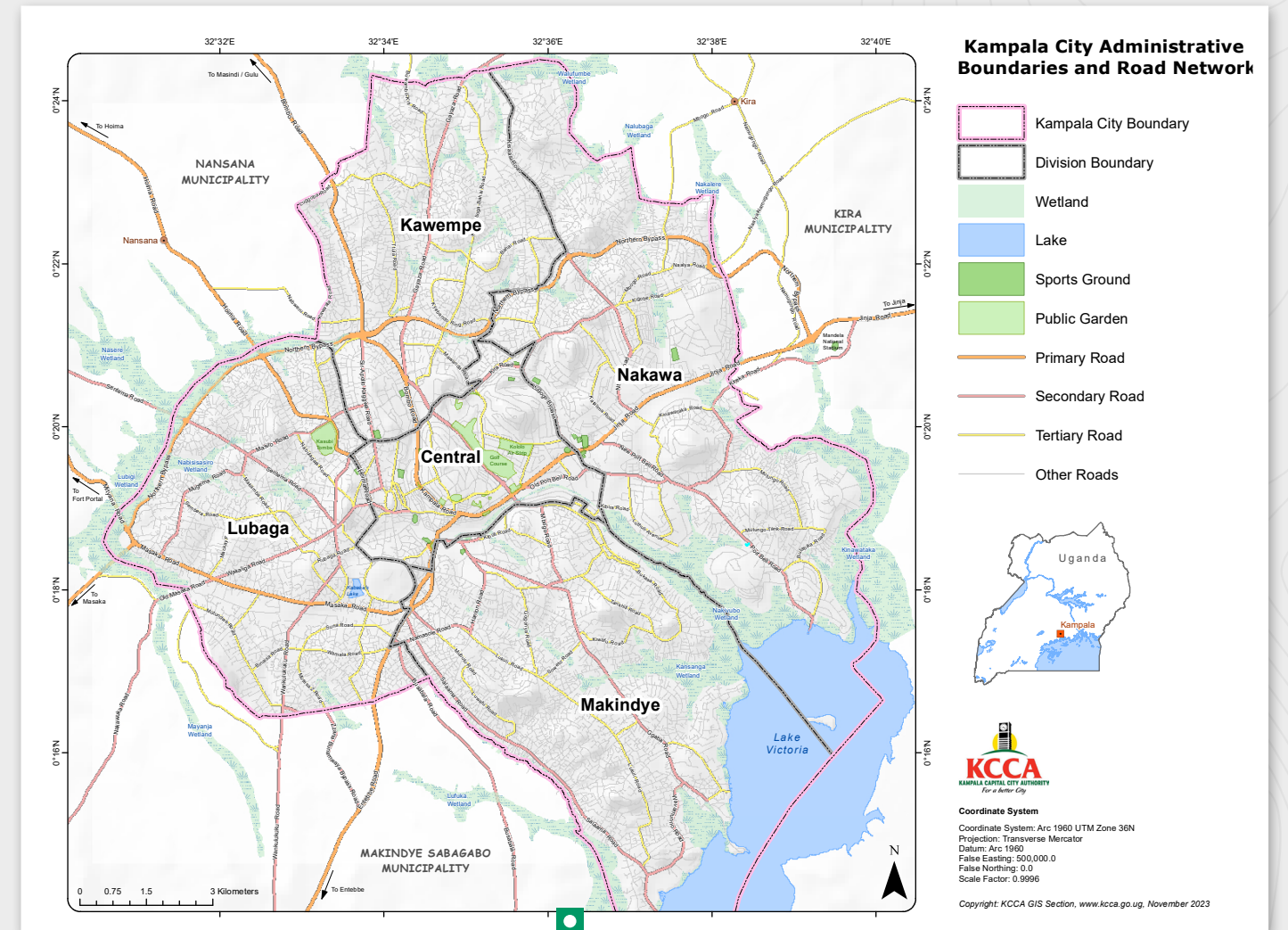


Observational studies by:
The Johns Hopkins International Injury Research Unit and Makerere University, Kampala

Johns Hopkins International Injury Research Unit



MAP OF KAMPALA CITY



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KCCA Department of Geographical Information Systems (GIS)
www.kcca.go.ug,
December 2023

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NORTH



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THE MINISTER

Preface



I am deeply honored to contribute to the sustained political commitment towards prioritizing road safety.



Hon. Hajjati Minsa Kabanda
Minister for Kampala Capital City And Metropolitan Affairs

The 2022 Uganda Police annual crime report revealed a 17% increase in traffic crashes in the country from 17,443 to 20,394. These numbers are profoundly troubling and should not be tolerated. One of the most critical aspects of my office's responsibilities is safeguarding our lives on the city's roads that connect us, uniting neighborhoods, businesses, and dreams.

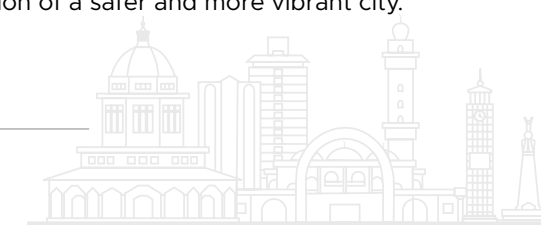
In a busy capital like ours, with dynamic energy and diverse population, road safety is not merely an administrative obligation; it is a moral imperative. Our streets, avenues, and roads are the arteries of our city, facilitating the flow of people, goods, and services. They are the threads that weave together the intricate fabric of urban life. Therefore, it is paramount that we make these roads safer, more efficient, and more accessible to everyone.

For the last three years, the City has shared this report not as a mere formality, but as a comprehensive overview of our city's journey towards safer roads. It is an acknowledgment of the challenges we continue to face and the progress we are making. Moreover, it serves as an invitation to every resident to be an active participant in shaping the future of our city's transportation.

The journey towards safer roads is not a solitary one. It is a collective endeavor, and your voice matters. We encourage your feedback, suggestions, and involvement in making our streets safer for all. Together, we can continue to build a city where no one needs to fear the simple act of traveling from one place to another.

I thank everyone who participated in the compilation of this document, the law enforcement agencies, and community organizations who work tirelessly to improve road safety. Your dedication and hard work are the driving force behind our progress.

As we move forward, the path to safer roads may be challenging, but it is a journey that we are undertaking together. With your support, we will continue to make strides towards our shared vision of a safer and more vibrant city.



Preface

It is with great pleasure and a profound sense of responsibility that we present to you the City Annual Road Safety Report, 2022. As the Lord Mayor of Kampala, I am deeply committed to seeing to it that we ensure a safe road network in the city. Our roads are not just thoroughfares; they are the arteries that connect us, and they should always be safe to use; and that is why we adopted the Kampala City Road Safety Strategy 2021-2030. This report and previous ones are deliverables of that Strategy which also emphasized among other interventions, high visible traffic enforcement, stakeholder participation, effective communication and infrastructure improvements.

In our ever-changing city where urbanization, technological advancements, and the demands of a modern society constantly reshape the way we live and move, warranting the safety of our roads becomes an even more pressing concern. This report goes to show the City's dedication in this regard, a demonstration of our tireless efforts to guarantee a planned and all-inclusive livable city with safe streets for everyone, especially the vulnerable.

Within this document, you will find a comprehensive overview of what transpired on our roads in 2022; it digs into the statistics, and confronts what needs improvement to help us all understand the situation much better. By sharing this report, we aim to foster transparency and accountability and open a dialogue with our community, because your input and collaboration are essential in our mission to make our roads as safe as they can be.

As you navigate through this report, I urge you to keep in mind that our city's road safety is not a singular task, nor is it solely the responsibility of the city administration or its politicians. It is a collective endeavor, one that requires the active participation of each and every member of the community. Whether you are a pedestrian, a driver, a cyclist, or a passenger, your actions have a direct impact on road safety. We are all stakeholders in this pursuit.

In closing, I extend my gratitude to the dedicated professionals, volunteers and partners who work industriously to protect and enhance the safety of our roads. I thank the Bloomberg Philanthropies Initiative for Global Road Safety for its support; it is through your shared commitment and partnership that we continue to make strides in ensuring that our city remains a safe and welcoming place for all.

“

Our roads are not just thoroughfares; they are the arteries that connect us, and they should always be safe to use.



H.W. Erias Lukwago
Lord Mayor
Kampala

Preface

“

Road safety is a collective responsibility which should not be delegated to one team, because we are all road users.



Dorothy Kisaka
Executive Director
Kampala Capital City Authority

Kampala is the capital city and seat of administration of the central government, and a hub of business and commerce in Uganda. Kampala attracts high traffic of motorists, cyclists and pedestrians on its road network spanning 2,100Kms, both paved and unpaved; with a population of 4.5m people, safety on the roads impacts every aspect of our lives because it has a direct bearing on commerce, education medical services, hospitality and leisure; all key parameters and drivers of GDP.

The third edition of the Kampala Annual Road Safety Report is therefore a testament to KCCA's commitment to ensuring the safety and well-being of the residents and visitors of Kampala.

It highlights our collective effort a city Administration, together with development partners, residents and all other stakeholders. It provides a detailed analysis of road safety data and challenges all of us to assess our progress and come up with new strategies to inform setting of new goals and targets in dealing with the carnage our roads and improving user experience.

As we delve into the content of this report, let's remember that enhancing road safety is a collective responsibility which should not be delegated to one team, because we are all road users.

I salute the dedicated city staff, first response teams, community leaders, all responsible road users, development partners plus the residents and visitors of Kampala. I also send a message to the entire public that our singular and unique contributions to ensuring road safety, galvanize into a safe, secure and user-friendly road experience.

Together, we are building a Smart City with Smart Mobility that improves connectivity and the efficiency and safety of movement of people and goods with in and through Kampala City.



Preface

The Directorate of Traffic and Road Safety Uganda Police is honored to collaborate with Kampala Capital City Authority and partners to produce yet another Annual Road Safety report.

Furthermore, the Directorate of Traffic extends its gratitude to KCCA, specifically through its Bloomberg Philanthropies Road Safety (BIGRS) project, for their unwavering commitment to the continuous training of our officers in areas such as speed enforcement, helmet use compliance, and crash investigation. We also thank the project for their support in the implementation of a pilot digital police crash database.

The last Kampala annual report was used by the Uganda Police Force to design strategies in 2022 towards the reduction in road crashes and fatalities. These included enforcement of wearing helmets and reflector jackets by boda boda riders. This enhanced visibility of the riders especially at night. The helmet wearing by the riders was intended to reduce the severity of head injury in case of collisions.

While we have made significant strides in improving road safety, we recognize that the work is far from complete. Our commitment remains improving road safety situation in the city through this partnership.

This report not only serves as a reflection of past efforts but also the importance of collaboration, innovation, and shared responsibility among road safety stakeholders.

The Directorate thanks KCCA administration, the Surveillance team, GRSP trainers and the traffic officers who are committed to building a safer city.

Together we can promote road safety.

“

The findings in this report will serve as a guide for police operations related to road safety enforcement.



Senior Commissioner Lawrence Niwabiine
Acting Director, Traffic and Road Safety
Uganda Police Force

Acknowledgements

This road safety report, the third edition for Kampala, uses 2022 police crash data as the main source. These annual reports aim to provide ongoing reporting on road traffic crash outcomes in the city and to help plan and inform road safety interventions.

The Directorate of Traffic and Road Safety, Uganda Police Force granted access to 2022 road crash records. Data were collected from nine police stations in the five divisions of Kampala (Nakawa, Central, Makindye, Kawempe and Lubaga).

Vital Strategies provided technical support to produce of this report. Johns Hopkins International Injury Research Unit (JH-IIRU) provided data on the road injury behavioural risk factors presented in the report.

Stellah Namatovu, the BIGRS Road Injury Surveillance Coordinator in Kampala, coordinated data collection, conducted data analysis, and drafted the report. Vital Strategies members Dr. Raphael Awuah, Regional Technical Advisor for Africa on Road Injury Surveillance, and Dr. Sara Whitehead, Global Lead for Road Injury Surveillance System Strengthening, supervised data collection and analysis, review, and publication of the report.

The BIGRS team in Kampala contributed to the content of this report as well. Thanks to Jemima Nalumansi (Initiative Coordinator), Leah Kahunde (Communications Officer), Caleb Katwebaze (Enforcement Coordinator) and Emmerentian Mbabazi (Project Specialist, WRI Africa's Cities Program).

Special thanks to the KCCA GIS team, Flavia Zabali Musisi (GIS supervisor) and Jean Ssekabira (GIS officer) for their invaluable support.

Thanks also to Eng. Jacob Byamukama, the BIGRS City Technical Lead and Deputy Director Transport and Traffic Management, and Eng. Justus Akankwasa, the Director of Engineering and Technical Services, for their supervision and support.



Executive Summary

Understanding the magnitude and trend of road traffic deaths and injuries is key for the implementation of context-specific and appropriate interventions. This report presents findings on deaths and injuries from road traffic crashes in Kampala using 2022 police records. Information on behavioral risk factors for road injuries is also presented.

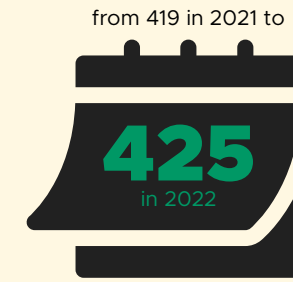
The findings show a 1% increase in the reported number of deaths in 2022 from 419 in 2021 to 425 in 2022. The death rate also marginally dropped, from 12 per 100,000 population in 2021 to 11.6 in 2022. However, there was a 5% increase in reported crashes in 2022 compared to the previous year.

Vulnerable road users — pedestrians, bicyclists, and motorcyclists — made up 94% of deaths in 2022. Motorcyclists alone accounted for nearly half (49%) of deaths in 2022. Males accounted for 76% of the reported fatalities. The highest proportion of deaths (22%) was recorded among victims aged 20 to 29 years.

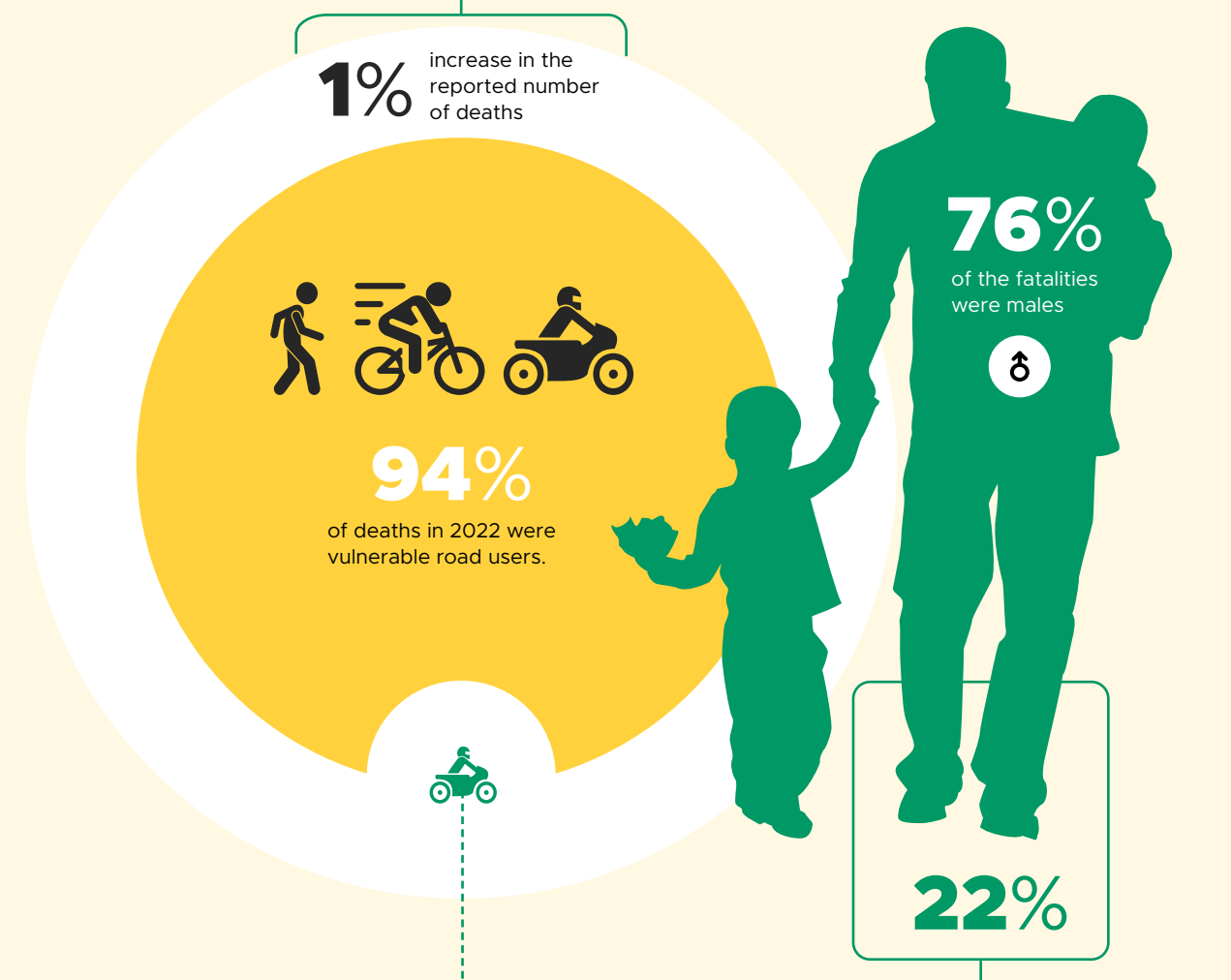
The high-risk fatal crash locations, based on three-year geolocation data, were concentrated along high-capacity roads in the city. Among them were Gayaza roundabout (Kalerwe)–Kyebando Police Post (Northern Bypass), Kissasi–Naalya roundabout (Northern Bypass), Entebbe Road, Ggaba Road, and Busega–Namungoona roundabout (Northern Bypass).

The city's administration has explored different measures to curb road carnage including embracing innovation, undertaking community outreach and education, and fostering partnerships with various stakeholders to address the multifaceted challenges of modern urban mobility. We have harnessed the use of crash data to identify high-risk periods and locations — enabling us to allocate resources effectively and make informed decisions.

Going forward, we are committed to using an evidence-based approach to explore new avenues for enhancing safety. This includes leveraging emerging technologies, improving infrastructure, and enhancing pedestrian and cyclist safety.



1% increase in the reported number of deaths



THE HIGH RISK FATAL LOCATIONS

- Gayaza roundabout
- Kisasi–Naalya roundabout
- Entebbe Road
- Ggaba Road
- Busega–Namungoona roundabout



Going forward, we are committed to using an evidence-based approach to explore new avenues for enhancing safety.



Motorcyclists alone accounted for nearly half of deaths in 2022

49%



5%

increase in reported crashes in 2022 compared to the previous year.



ABBREVIATIONS

List of Abbreviations

- BIGRS** Bloomberg Philanthropies Initiative for Global Road Safety
- GPS** Global Positioning System
- JH-IIRU** Johns Hopkins International Injury Research Unit
- KCCA** Kampala Capital City Authority
- UBOS** Uganda Bureau of Statistics
- WRI** World Resources Institute

Leveraging emerging technologies, improving infrastructure, and enhancing pedestrian and cyclist safety.



TARGET 3·6

REDUCE ROAD INJURIES AND DEATHS

TARGET 11·2

AFFORDABLE AND SUSTAINABLE TRANSPORT SYSTEMS

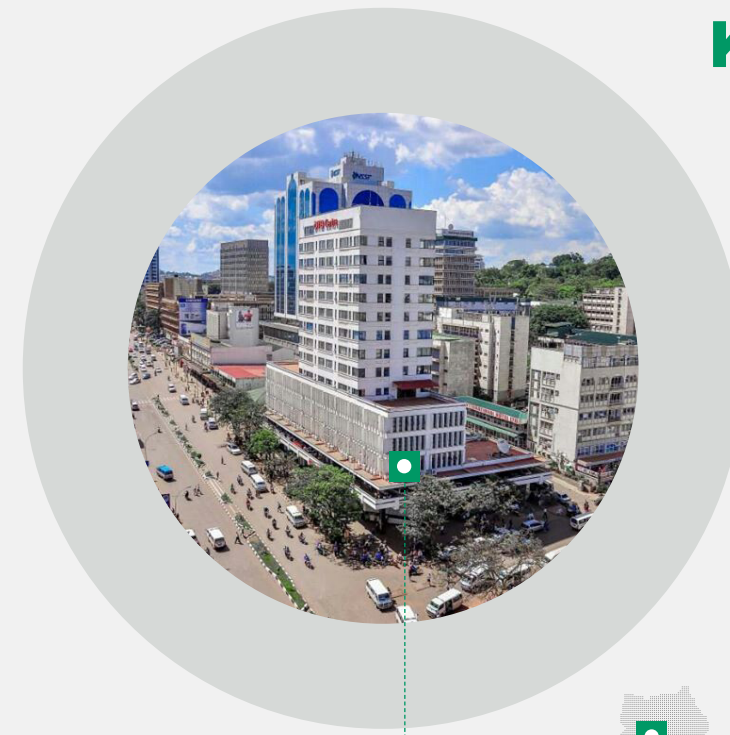


Introduction

Global estimates show that 3700 people lose their lives daily from road traffic crashes. Many of these preventable deaths occur in low- and middle-income countries like Uganda (World Health Organization, 2018).

Africa has the highest road traffic death rates compared to rates observed globally and in other regions, with 27 deaths per 100,000 population in 2019 compared to 17 deaths per 100,000 population globally (Segui Gomez et al., 2021).

The Uganda Police annual crime report showed a 17% increase in road traffic crashes in 2022 — from 17,443 to 20,394 (Uganda Police Force, 2023). Uganda loses an estimated UGX 4.4 trillion (\$1.2 billion) — about 5% of its GDP — through road crashes annually (UNECE, 2018).



Kampala City

Kampala is the capital city of Uganda. Its night population of more than 1.5 million rises to approximately 3.5 million during the day as many commute to work (Uganda Bureau of Statistics (UBOS), 2014). The city is divided into five administrative divisions: Central, Nakawa, Makindye, Kawempe, and Lubaga. Most of Kampala's population walk, use boda bodas or commercial motorcycles and taxis as transportation.

Uganda's Most populous City

Central, Nakawa, Makindye, Kawempe, and Lubaga



3.5 million people by day


5 Administrative Divisions

Most of Kampala's population walk, use boda bodas & taxis as transportation

PURPOSE OF THE REPORT


This report presents information on road traffic crashes, deaths, and injuries in Kampala for 2022 using data from police records. Findings from spatial analysis showing the distribution of fatal and serious injury crash locations are presented. The report also provides information on road-user risk behaviours and implemented actions to improve road safety in Kampala.

1




Road traffic deaths and injuries including high-risk crash locations

2



Road-user risk behaviours

3



Actions to improve road safety


DATA SOURCES AND SYSTEMS


Police crash records are the main source of official road traffic crash data in Uganda. An adapted version of Police Form 57A was used to extract data from narrative police crash reports for 2021. Some records were likely not reviewed because of the nature of storing the paper forms and because some records lacked all the details needed for extraction.

Narrative descriptions and sketches of the crash location in police reports were used to generate crash coordinates with the use of the ArcGIS Survey 123 application.

Data on risk factors for road injuries — helmet use, speeding, and seat-belt/childrestraint use — were assessed through observation by Johns Hopkins University International Injury Research Unit (JH-IIRU) in collaboration with Makerere University School of Public Health.

DEFINITIONS

- 

Road traffic fatality
Death from injuries sustained in the crash, whether occurring at the scene of the incident or within one year and one day.
- 

Serious/severe injury
Injury resulting in at least one person being hospitalized for at least 24 hours.

1

Trend of Road Crashes, Deaths, And Injuries



ROAD TRAFFIC DEATHS AND INJURIES

The number of reported fatalities in Kampala increased by 1%, from 419 in 2021 to 425 in 2022. The number of serious injuries also decreased by 4%, from 2,318 in 2021 to 2,234 in 2022. (Figure 1).

Similarly, the death rate decreased from 12 per 100,000 population in 2021 to 11.6 in 2022. The serious injury rate also decreased from 66 per 100,000 population in 2021 to 61 in 2022 (Figure 2).

Road traffic deaths and injuries, 2018–2022

Number of victims

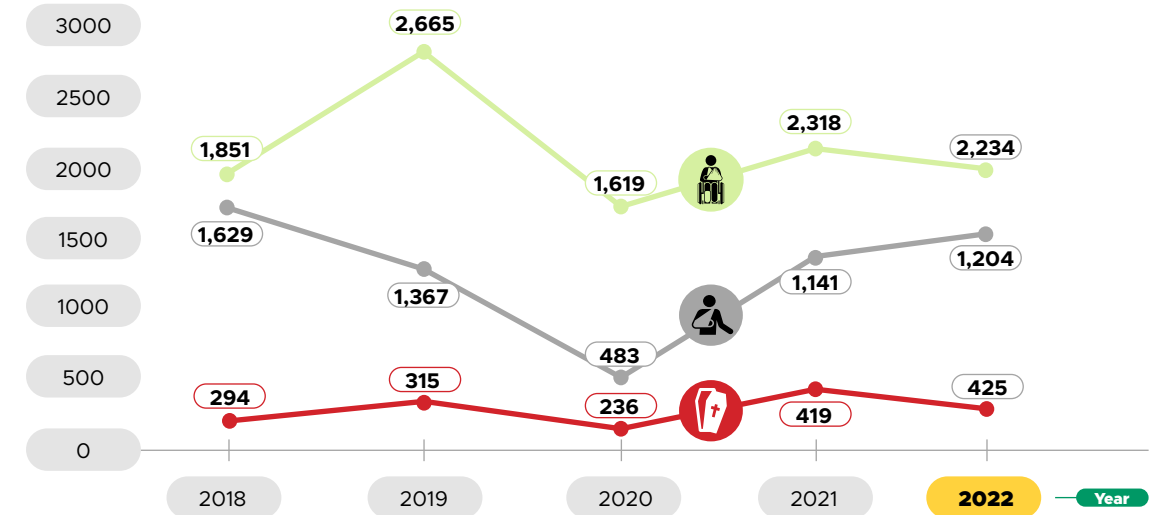


Figure 1

Death and serious injury rates, 2018–2022

Number of victims

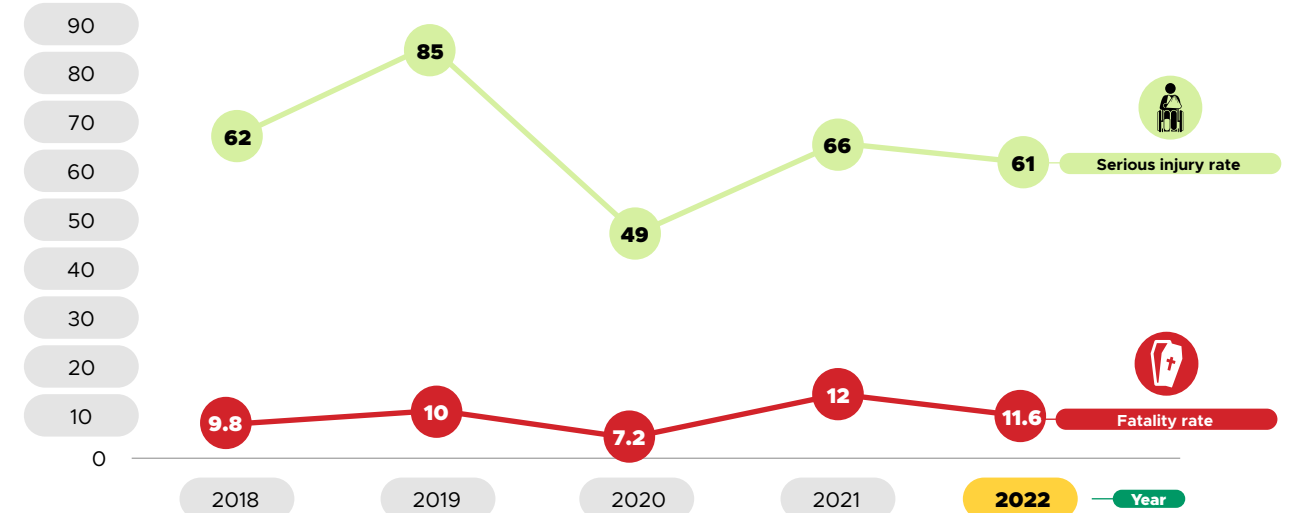


Figure 2



DEATHS AND SERIOUS INJURIES BY ROAD USER TYPE

Pedestrian deaths increased by 14%, from 162 in 2021 to 185 in 2022. Motorcyclist deaths, however, marginally dropped by 1% in 2022 compared to the previous year (Figure 3).

Vulnerable road users — pedestrians, motorcyclists, and bicyclists — made up 94% of the reported deaths in 2022 (Figure 4). Motorcyclists alone accounted for 49% of these deaths. These findings reinforce the need to prioritize motorcycle and pedestrian safety in Kampala.

Trend of deaths by road user type, 2019-2022

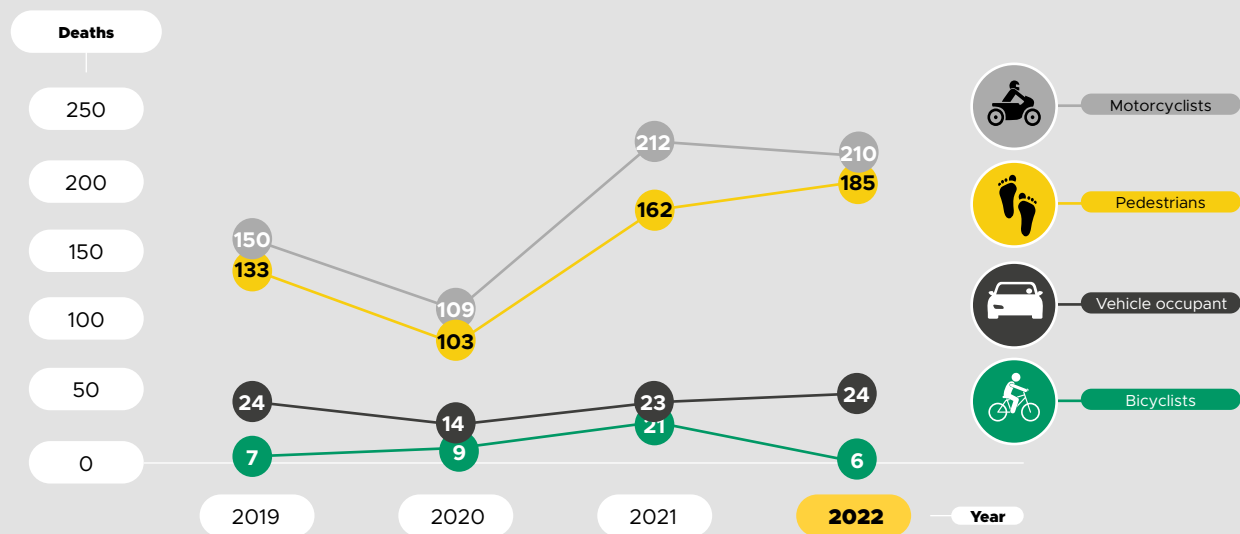


Figure 3
Data from 2017 to 2018 were sourced from Police summary figures

Percentage distribution of deaths by road user type, 2022

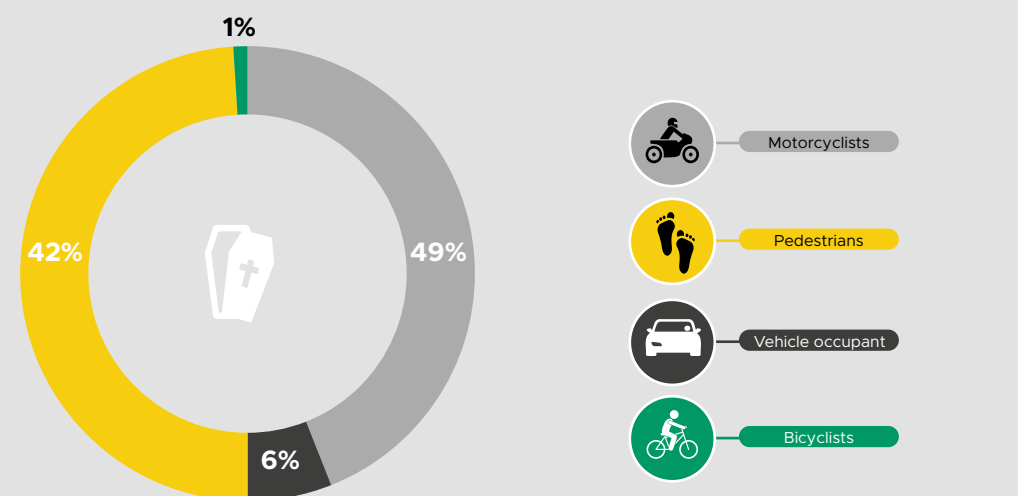
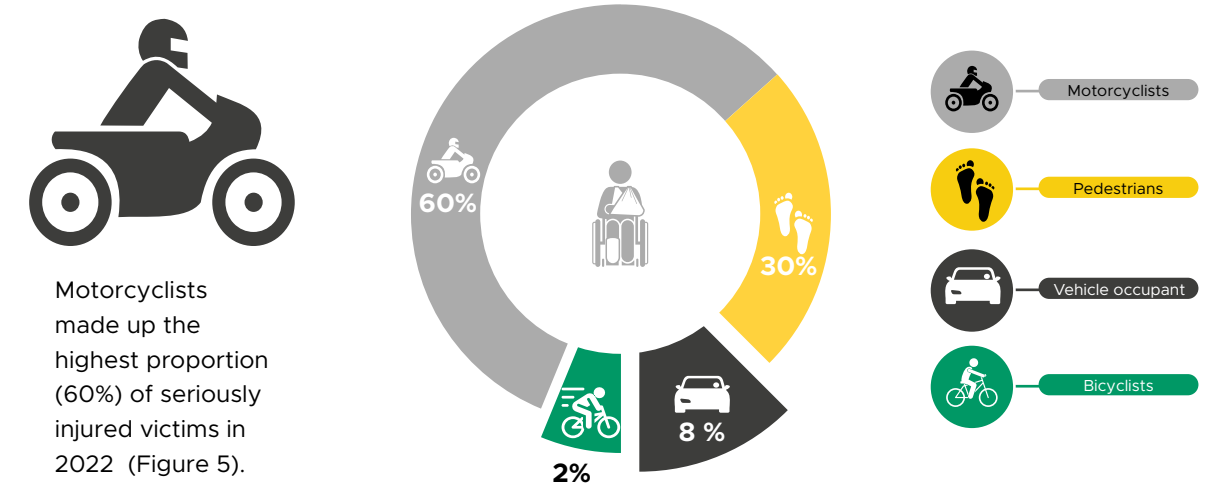


Figure 4
Data from 2017 to 2018 were sourced from Police summary figures



Motorcyclists made up the highest proportion (60%) of seriously injured victims in 2022 (Figure 5).

DEATHS AND SERIOUS INJURIES BY SEX

Males accounted for 76% of traffic crash deaths and 72% of serious injuries in Kampala in 2022 (Figures 5). This pattern has been consistent in Kampala for the last three years. Globally, about three-quarters of all road traffic deaths occur among young males (World Health Organization, 2018).

Deaths and serious injuries by gender, 2022

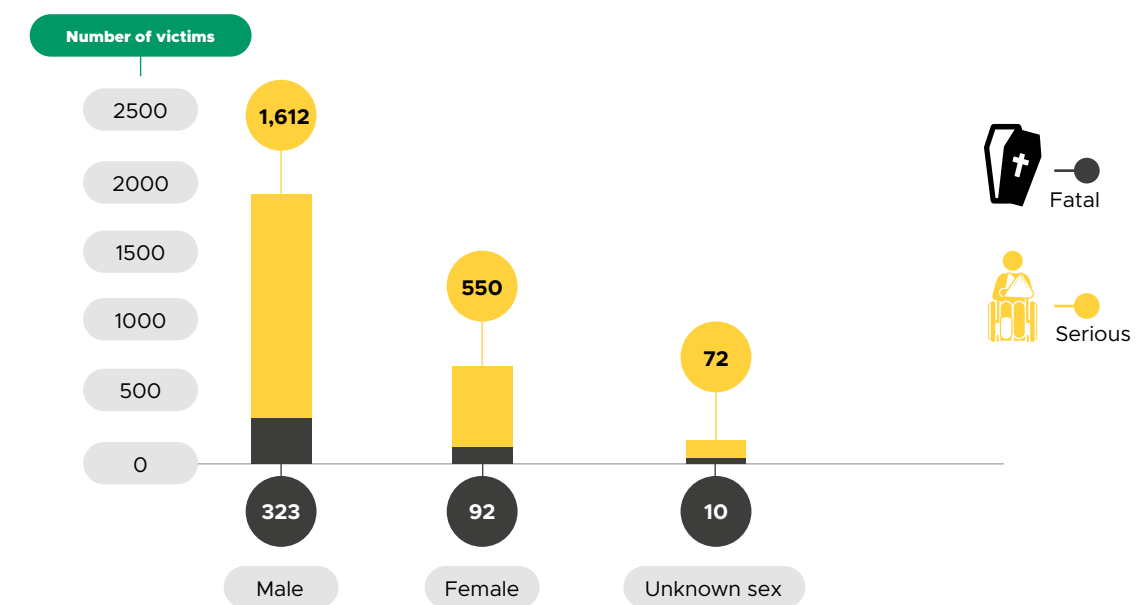


Figure 6

"Unknown sex" refers to victims of crashes whose sex were not documented in police records.



DEATHS AND SERIOUS INJURIES BY AGE

The highest number of deaths in 2022 occurred among those aged 30 to 39 years, whereas serious injuries were most frequently reported among those aged 20 to 29 years (Figure 7).

Deaths and serious injuries by age group, 2022

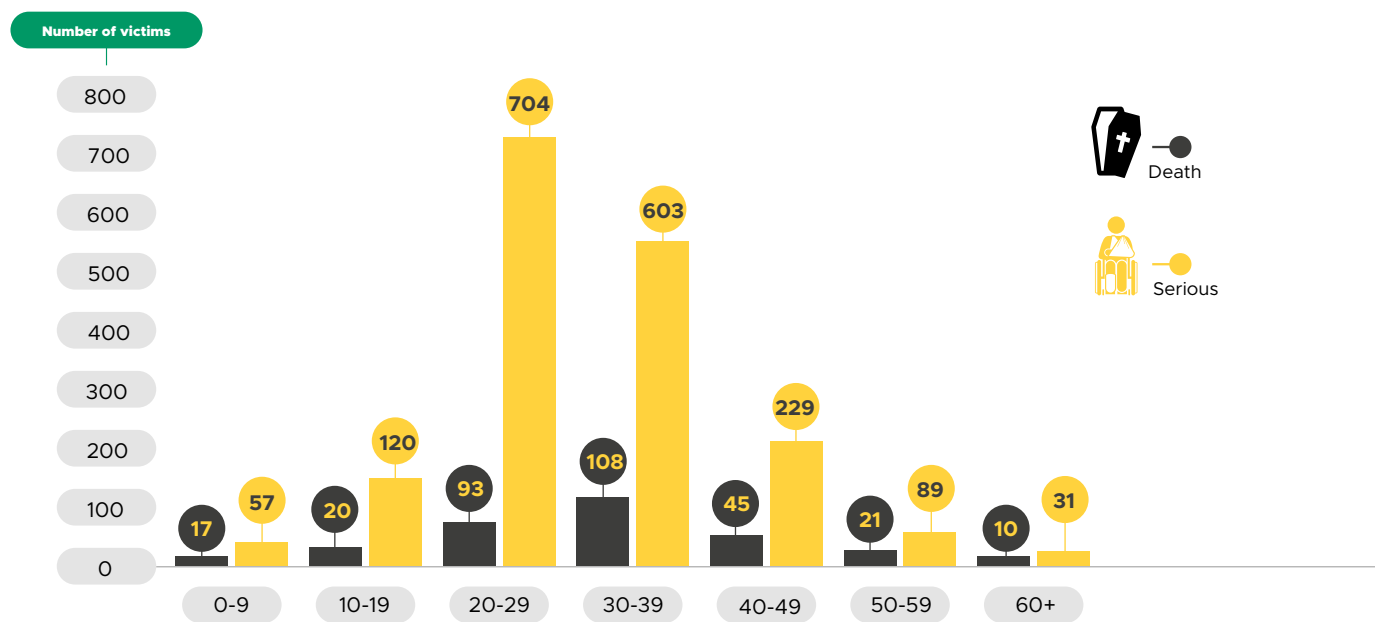


Figure 7



CRASHES AND DEATHS BY TIME OF DAY

A higher number of crashes occurred between 6 and 8 p.m. in 2022 (Figure 8). However, fatal crashes were highest between 8 and 10 p.m. (Figure 9). These findings can be used by police in traffic enforcement deployment in the city.

Crashes by time of day, 2022

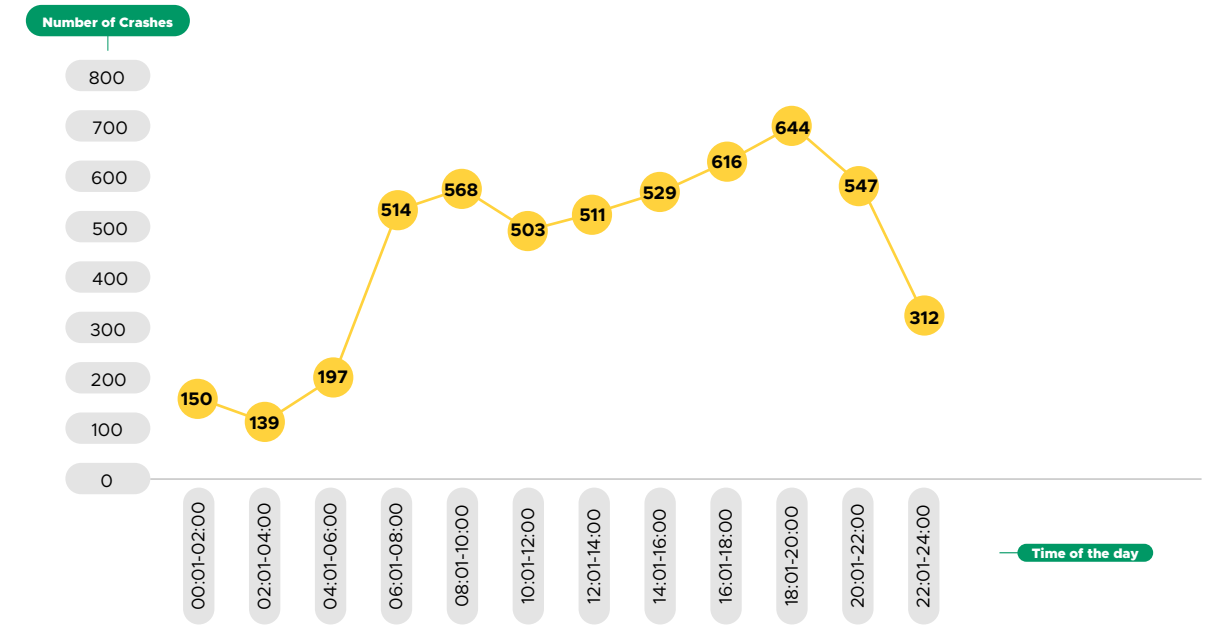


Figure 8

Fatal crashes by time of day, 2022

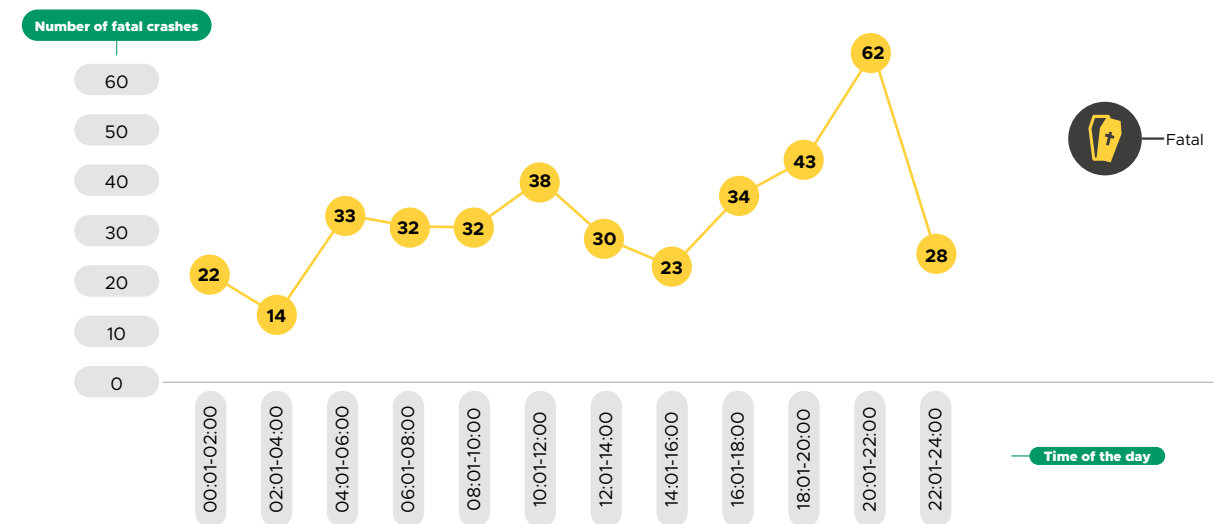


Figure 9





CRASHES AND DEATHS BY DAY OF WEEK

No pattern was observed for crashes by day of the week in 2022 (Figure 10). However, deaths were most frequently observed from crashes that occurred on Mondays and Saturdays (Figure 11). These findings can inform traffic police operational staffing and planning for risk-factor enforcement.

Crashes by day of the week, 2022

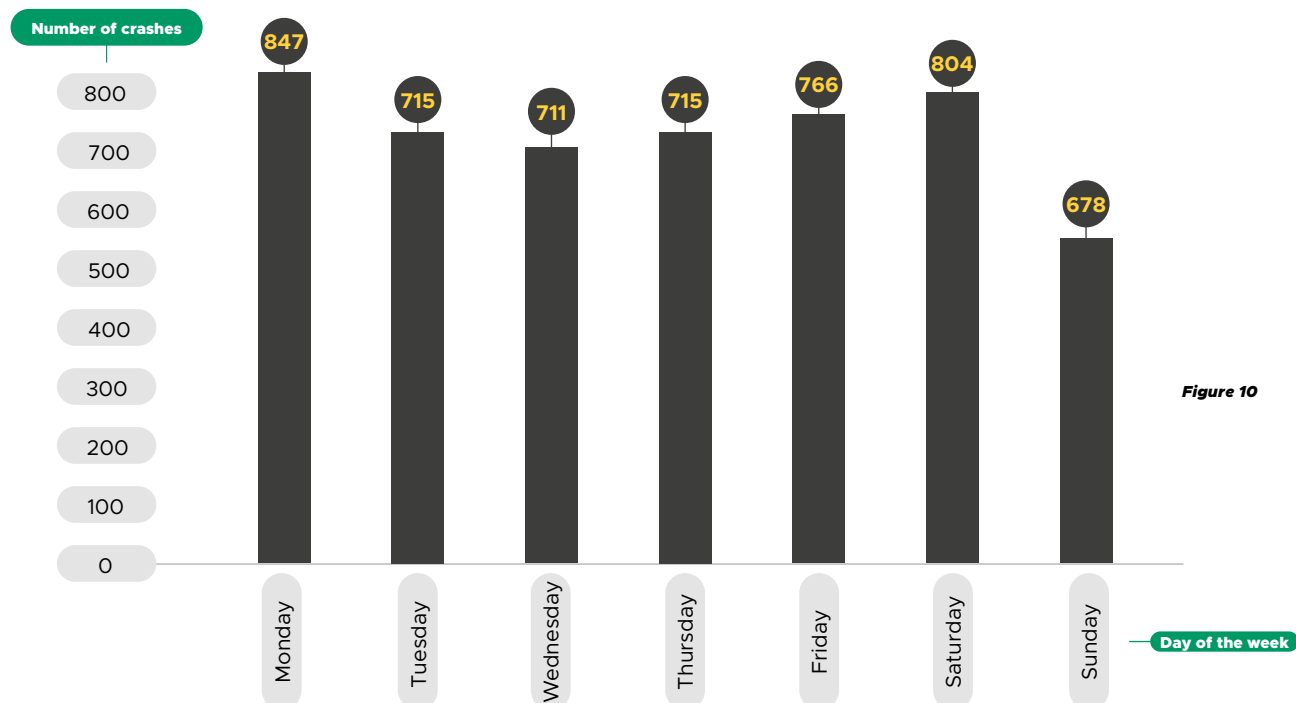


Figure 10

Deaths by day of the week, 2022

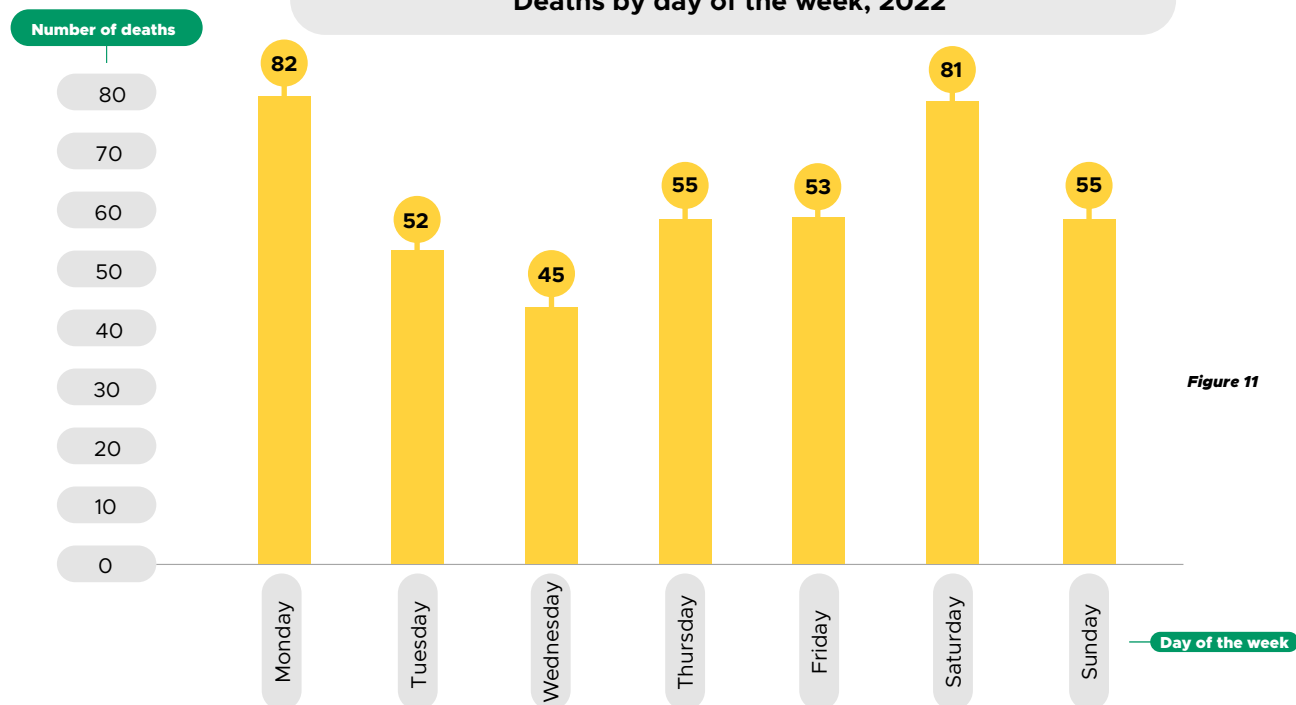


Figure 11



DEATHS BY DAY OF WEEK AND TIME OF DAY

From 2019 to 2022, road crash deaths were most frequently reported on Mondays, Saturdays and Sundays from 4 p.m. to midnight (Table 1). The findings highlight the need for increased enforcement on road injury risk factors such as speeding, drink driving, and non-use of helmets, seat belts and child restraints to be intensified at these days and times.

Deaths by Day of Week and Time, 2019-2021

TIME	MON	TUE	WED	THUR	FRI	SAT	SUN
00:01-04:00	23	9	10	12	7	26	27
04:01-08:00	40	42	23	21	25	43	34
08:01-12:00	32	39	28	34	38	49	33
12:01-16:00	45	32	27	40	25	34	30
16:01-20:00	49	37	32	32	38	45	55
20:01-24:00	42	27	35	37	38	48	47
TOTAL	231	186	155	176	171	245	226

Table 1



<20



30-39 deaths



40+ deaths



CRASHES, DEATHS AND SERIOUS INJURIES BY MONTH

The distribution of crashes, deaths and serious injuries by month showed no seasonal pattern for 2022 (Figures 16). The highest number of reported deaths in 2022, however, occurred following crashes in June.

Crashes, deaths and serious injuries by month, 2022

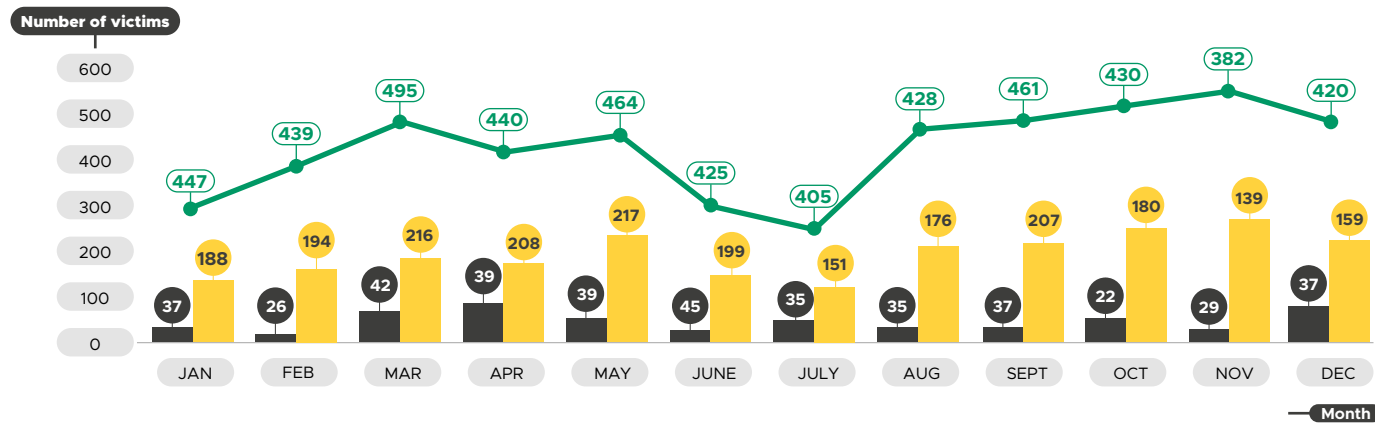


Figure 12



DEATHS BY COLLISION TYPE

Crashes involving two or more vehicles constituted half of the reported deaths in 2022. Collisions with pedestrians made up 39% of deaths (Figure 12).

Percentage of deaths by collision type, 2022

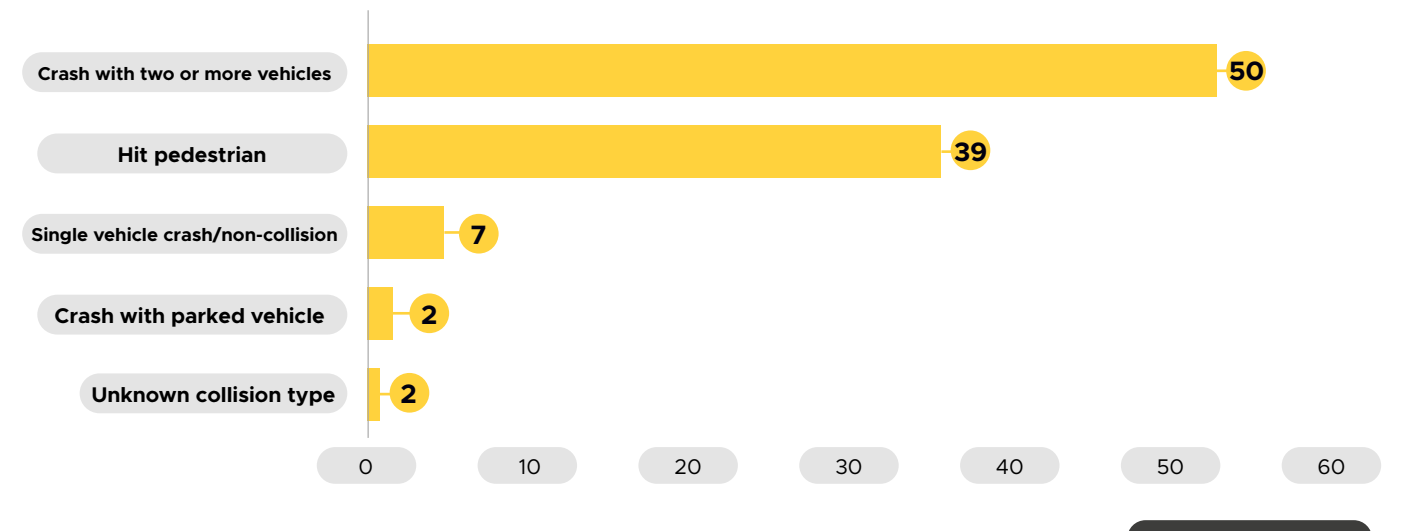



Figure 13

Percentage of deaths



50%
of deaths in 2022 occurred following crashes involving two or more vehicles.



39%
of deaths in 2022 occurred as a result of vehicle-pedestrian collisions.





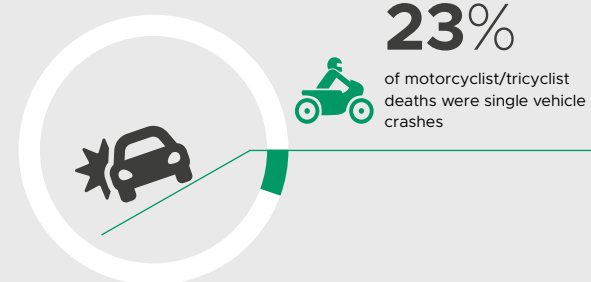
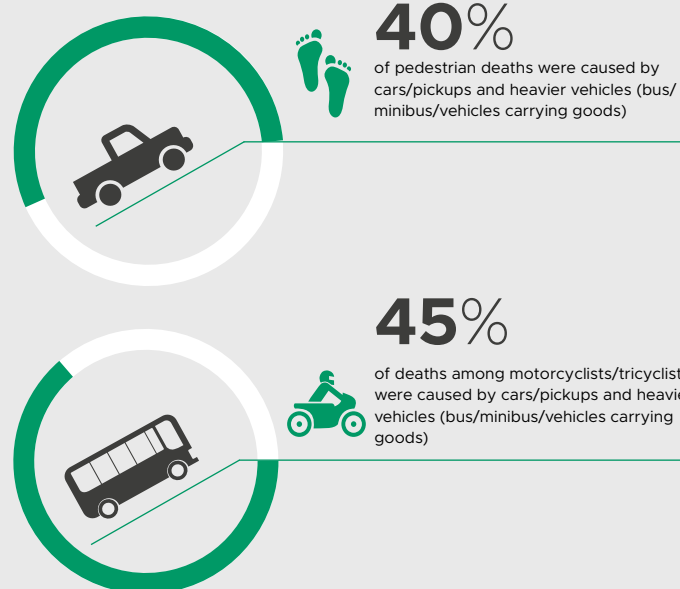
DEATHS BY ROAD USER AND CAUSAL VEHICLE TYPE

Table 2 shows the correlation between deaths by road user type and colliding vehicles. Deaths among pedestrians were most frequently caused by cars and pickups (40%). Buses/minibuses and motorcycles were the causal vehicles in 17% and 14% of pedestrian deaths, respectively in 2022. Deaths among motorcyclists frequently occurred from crashes involving motorcycles (36%).

Deaths by road user and causal vehicle type, 2022

Victim	Car /pickup	Bus/ minibus	Goods Vehicle	Motor-cycle /tricycle	Bicycle	Single Vehicle Crash	Unknown	Total
Pedestrian	74	31	17	26	0	0	37	185
Car/ pick up occupants	3	2	2	1	0	5	1	14
Bus/ minibus occupants	0	1	3	0	0	2	1	7
HGV occupants	0	0	0	0	0	0	0	0
Motorcycle and tricycle occupants	43	24	45	58	0	17	23	210
Bicyclist	2	0	2	0	1	1	0	6
Others/ Unknown	0	0	0	0	0	3	0	3
Total	122	58	69	85	1	28	62	425

Table 2



HIGH-RISK LOCATIONS

Using four years (2019–2022) of geolocation crash data, the top ten high-risk fatal crash spots and corridors are presented in tables 3 and 4 respectively.

Heat maps show the spatial distribution of all crash locations (Figure 14), fatal crash locations (Figure 15), serious injury crash locations (Figure 16), pedestrian fatal and serious crash locations (Figure 17) and motorcyclist fatal and serious injury crash locations (Figure 18).

These locations should inform plans for road infrastructure maintenance, intersection design interventions and enforcement operations.

Top ten high-risk fatal crash spots, 2019 - 2021

NO.	INTERSECTION/JUNCTION/ROUNDBOUT	NUMBER OF DEATHS
1	Kalerwe roundabout (Northern Bypass)	13
2	Sentema roundabout (Northern Bypass)	11
3	Mbogo-Najjera road junction (Northern Bypass)	10
4	Nakulabye intersection (Balintuma and Hoima Road)	9
5	Joining the Bwaise Flyover (Northern Bypass)	9
6	Bwaise roundabout (Northern Bypass)	8
7	Access Road and Jinja Road junction	7
8	Salama Road and Entebbe Road junction	7
9	Kisaasi-Kyanja road junction (Northern Bypass)	7
10	Nsooba-Kyebando road flyover (Northern Bypass)	6

Table 3

*Death statistics are based on geocoded crash data, 2019–2022

Top ten high-risk fatal crash corridors, 2019–2022

NO.	NAME OF CORRIDOR	NUMBER OF DEATHS	LENGTH OF CORRIDOR (KM)	DEATHS PER KM
1	Gayaza roundabout (Kalerwe)–Kyebando Police Post (Northern Bypass)	68	2.0	34
2	Kissasi–Naalya roundabout (Northern By-pass)	53	3.5	15
3	Entebbe Road	50	1.8	27
4	Ggaba Road	39	7.5	5
5	Busega–Namugoona roundabout (North-ern Bypass)	38	5.1	7
6	Jinja Road	34	6.5	5
7	Kibuye- Natete Road	33	4.5	7
8	Masaka Road	26	1.9	13
9	Hoima Road	26	3.2	8
10	Bombo Road	24	3.9	6

Table 4

*Death statistics are based on geocoded crash data, 2019–2022



Distribution of all road crash locations, 2019–2022

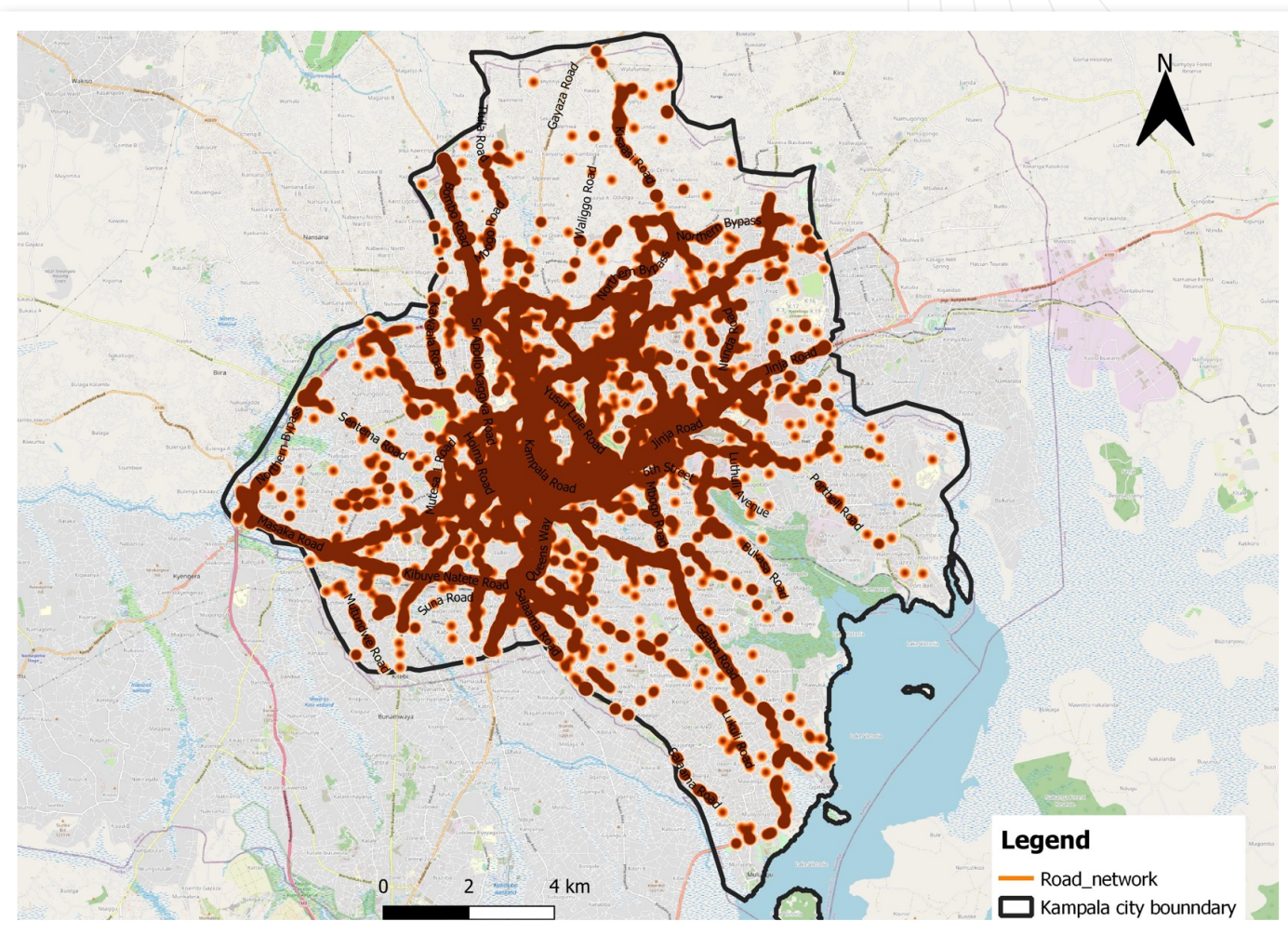


Figure 14



Distribution of fatal crash locations, 2019–2022

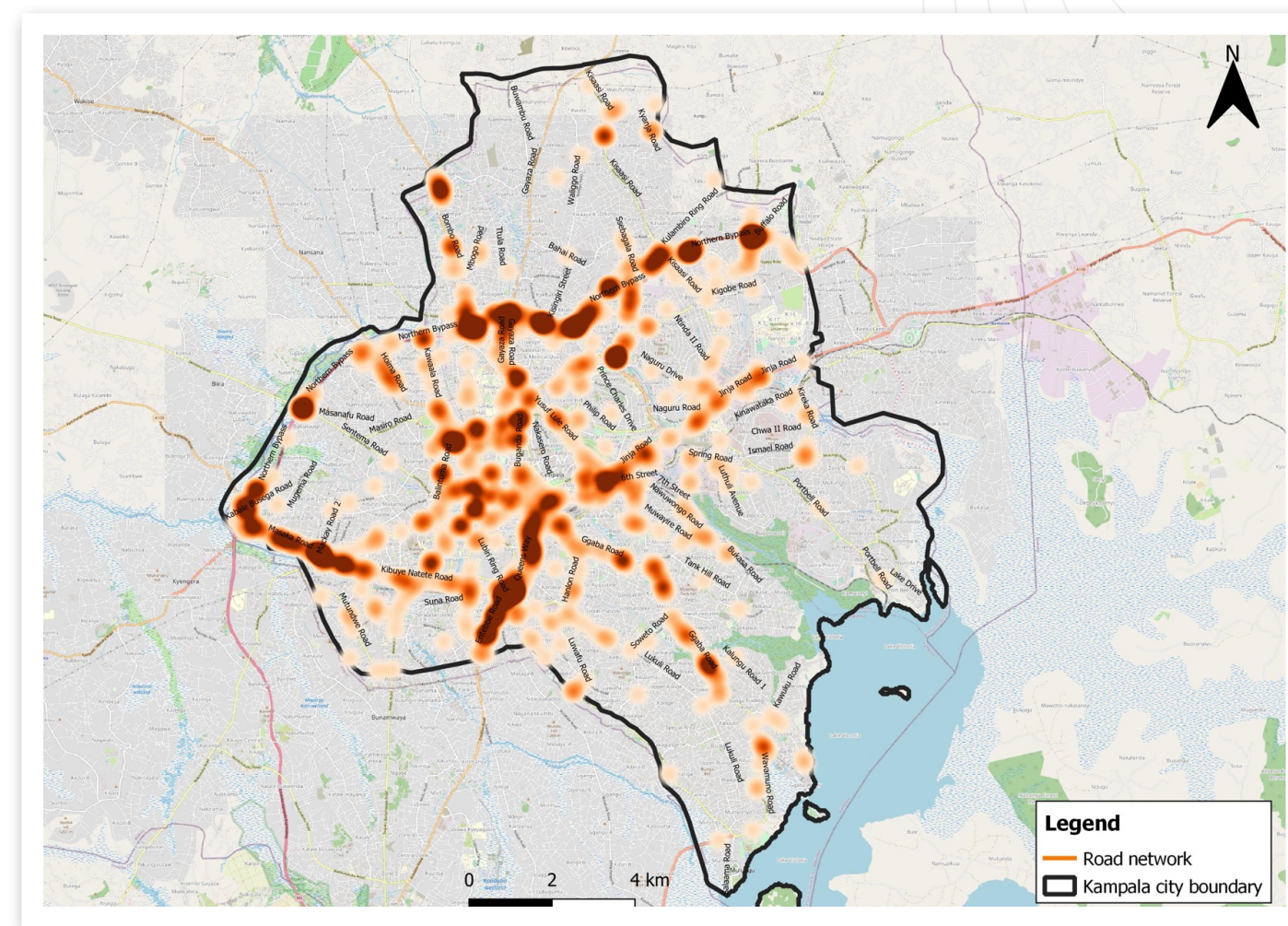


Figure 15





Distribution of serious injury crash locations, 2019–2022

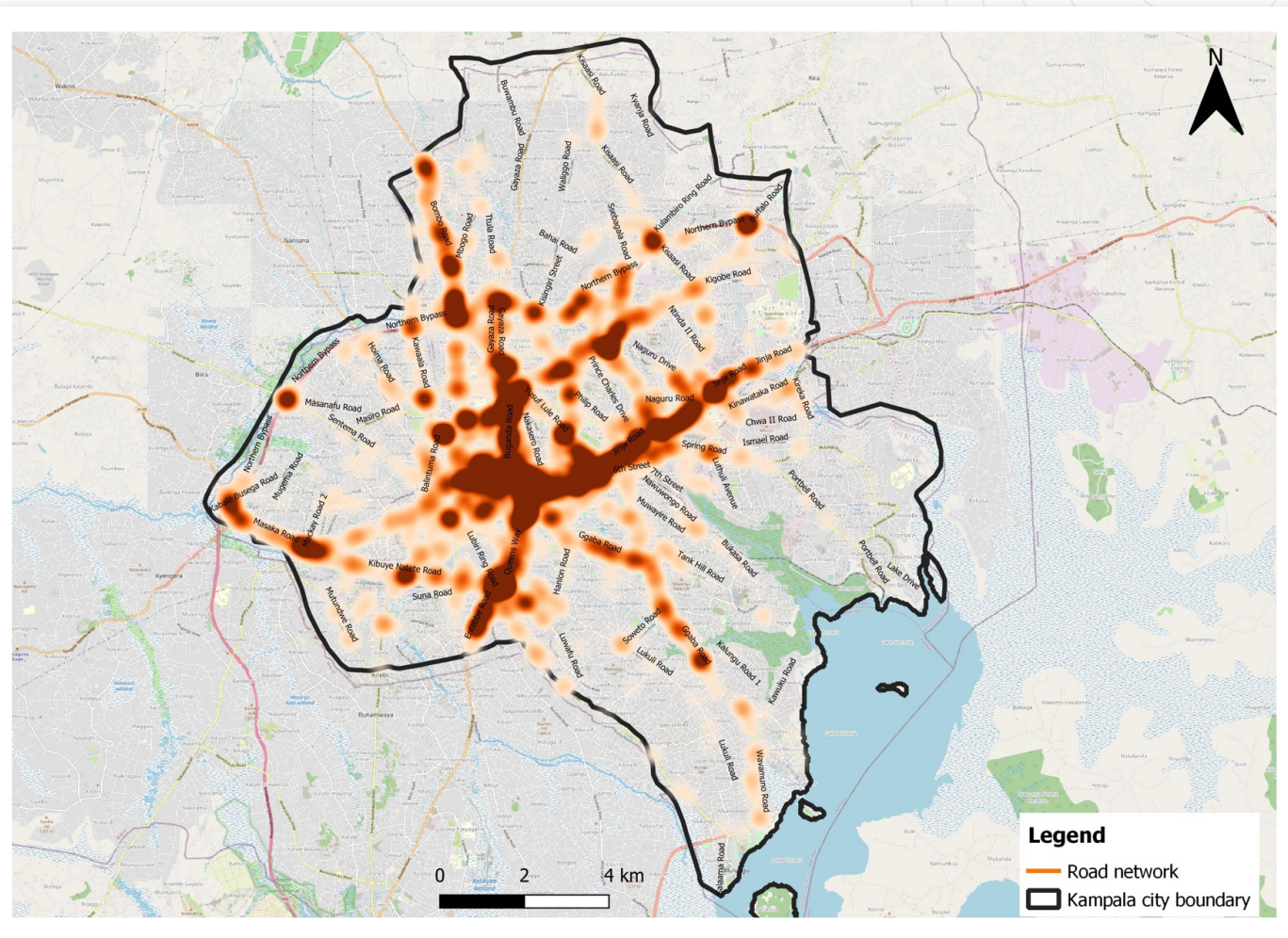


Figure 16



Pedestrian fatal and serious injury crashes, 2019–2022

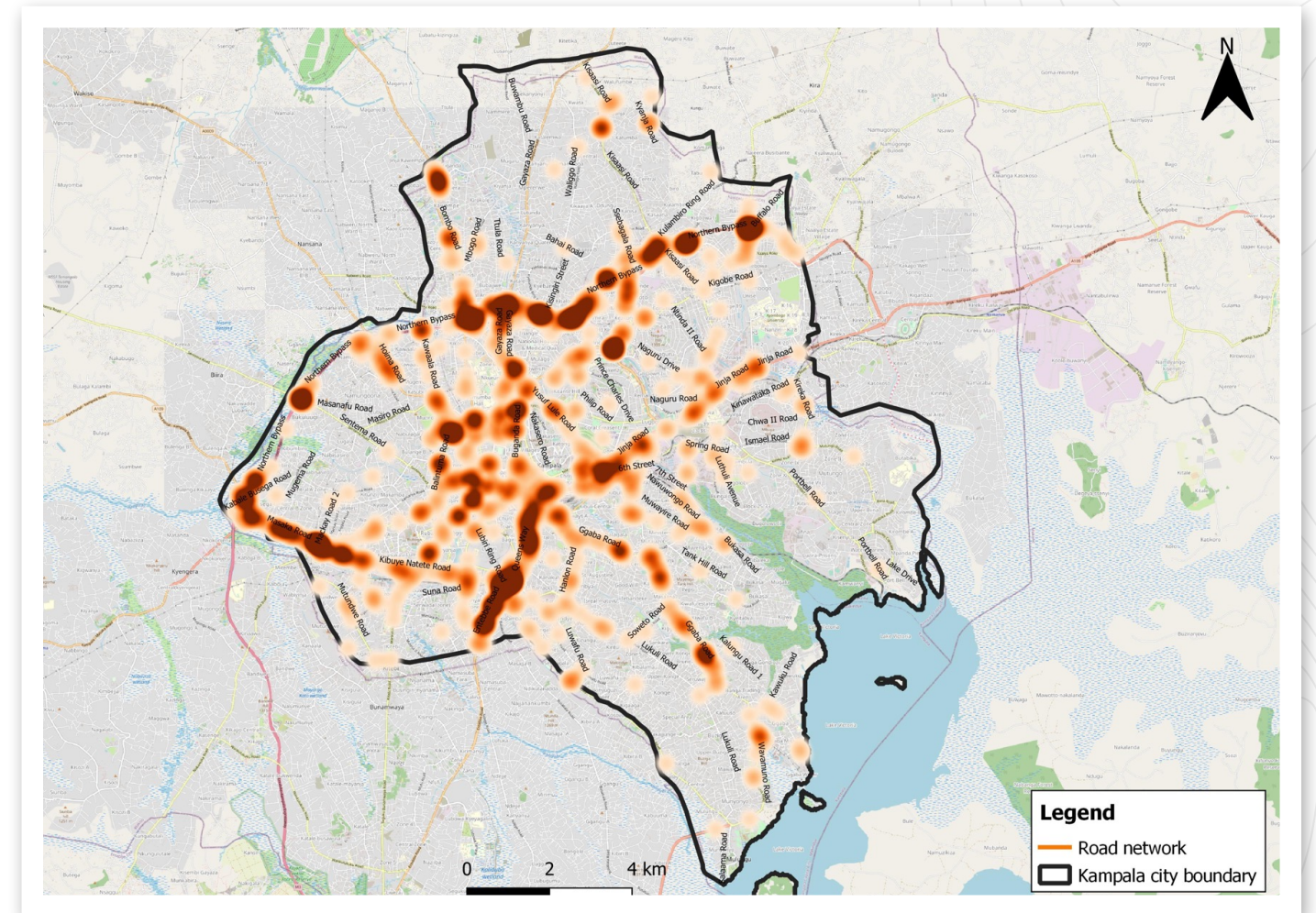
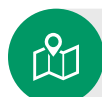


Figure 15





Heat map showing motorcycle fatal crashes, 2019–2022

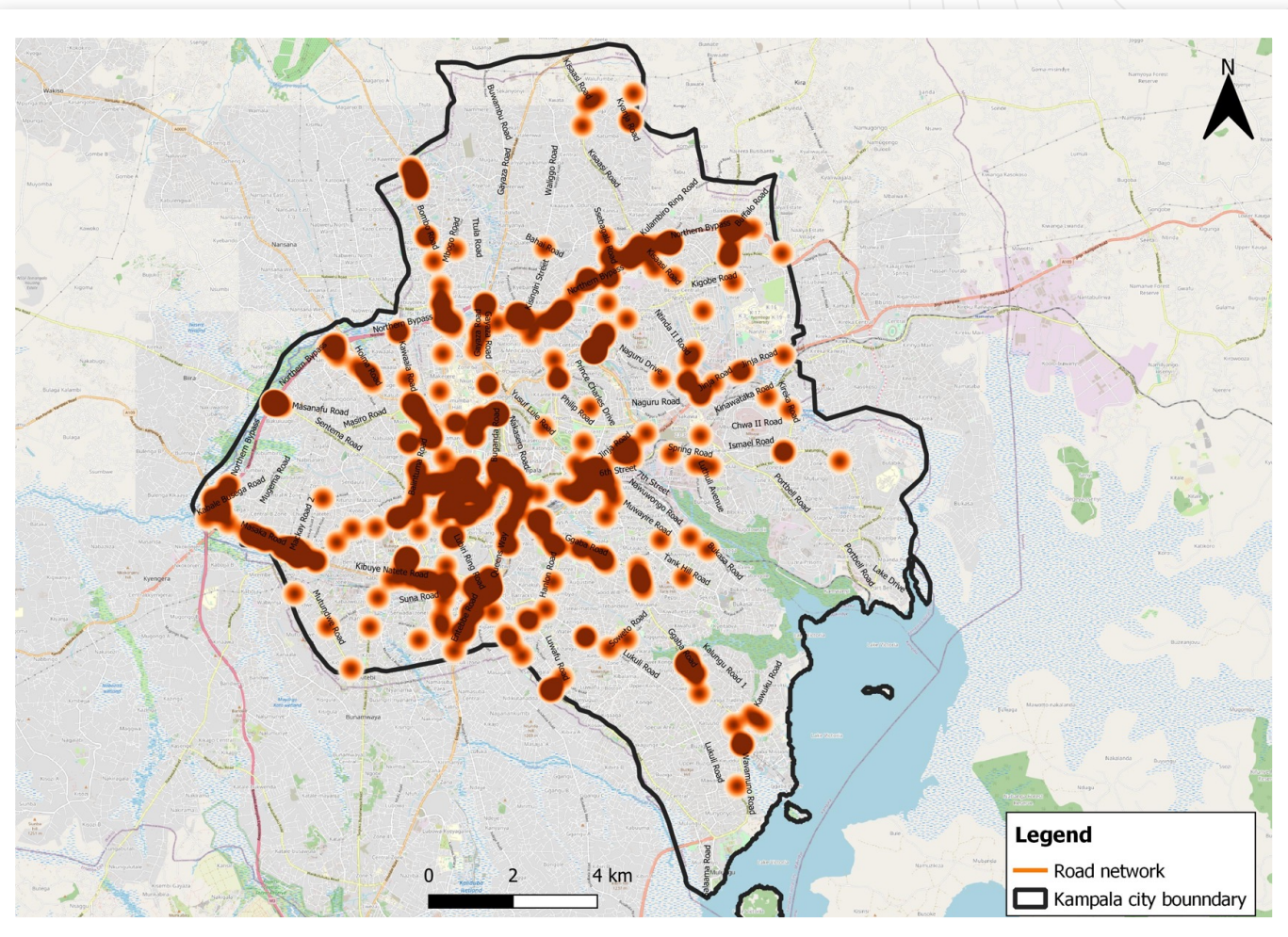


Figure 16



2

Retrospective assessment of road traffic deaths and serious injuries in two referral hospitals and mortuaries in Kampala



BACKGROUND

Police crash reports are the primary source of crash statistics in Uganda, however, there are limitations (Adeloye et al., 2016). Underreporting is common and is usually higher for vulnerable road users (Constant, 2010). To generate a more realistic estimate of road injuries and deaths, the World Health Organization recommends using at least two independent data sources, including at least one health-sector source (WHO, 2018).

A retrospective study was conducted to collect road traffic fatality and serious injury data from major referral hospitals that provide care for severely injured patients. The study aimed to create a profile of those fatally injured and provide a basis to generate a reliable estimate of road traffic deaths in Kampala.

METHODOLOGY

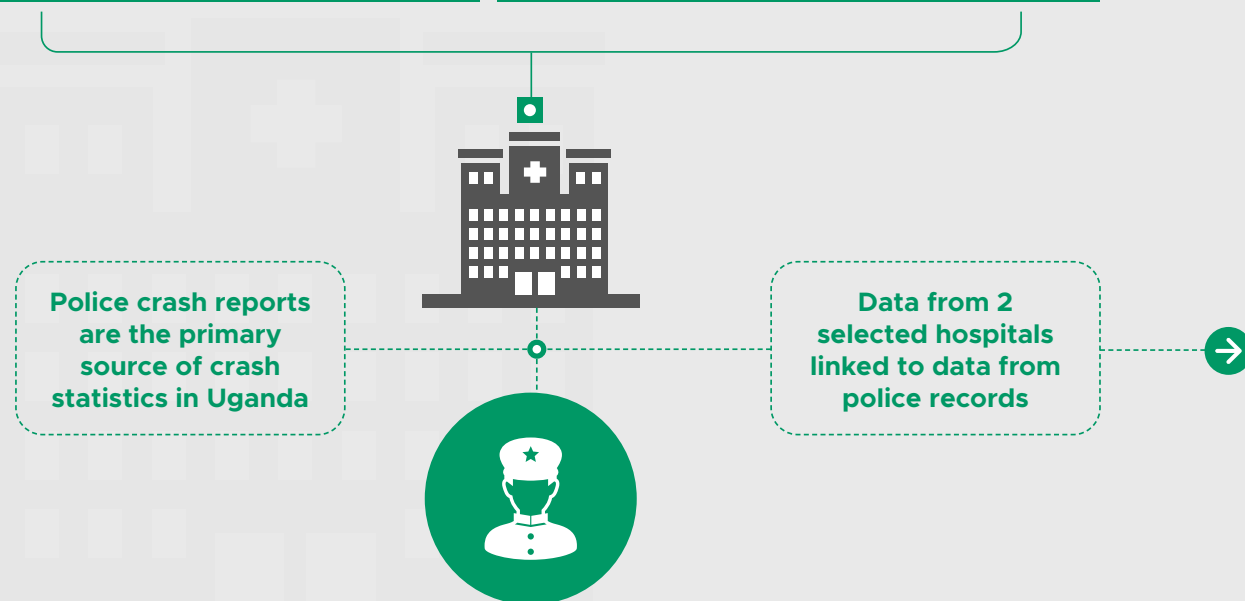
The study was conducted at the Accident and Emergency department, Mulago national referral hospital; Kampala Capital City Authority mortuary; and the Accident and Emergency and mortuary departments, China-Uganda Friendship Naguru Hospital. The study included records of road traffic victims who were admitted from 2020 to 2021 due to injuries and either died or were discharged, and those who died at the scene of a crash and were transferred to the mortuary.



Mulago hospital



China-Uganda friendship hospital



ETHICS APPROVAL

Ethics approval was provided by the Mulago Hospital Research Ethics Committee, China-Uganda Friendship Hospital Naguru Research Ethics Committee, Uganda National Council for Science and Technology and the BRANY SBIR Institutional Review Board on behalf of Vital Strategies.

DATA ANALYSIS

Data analysis involved abstracting data from hospital charts, and manually linking the data with police fatal crash records. Fatal crashes which occurred outside Kampala or in unknown crash locations were excluded from the linkage process.

The number of road fatalities in Kampala was estimated using the capture-recapture approach. Capture-recapture is a method of developing an overall estimate based on cases captured in more than one discrete sample or data sources (Morrison, 2000). The technique has been applied to a variety of epidemiologic studies, including road traffic morbidity and mortality (Abegaz, 2014).

RESULTS

There were 2,517 road traffic deaths from hospital records from 2020 to 2021 (Figure 19). Of these, 26% (662) occurred in Kampala, 50% (1,266) outside the city's boundary and 23% (589) in undocumented locations (Figure 20). The linkage and capture-recapture analysis included only deaths from crashes documented to have occurred in Kampala.

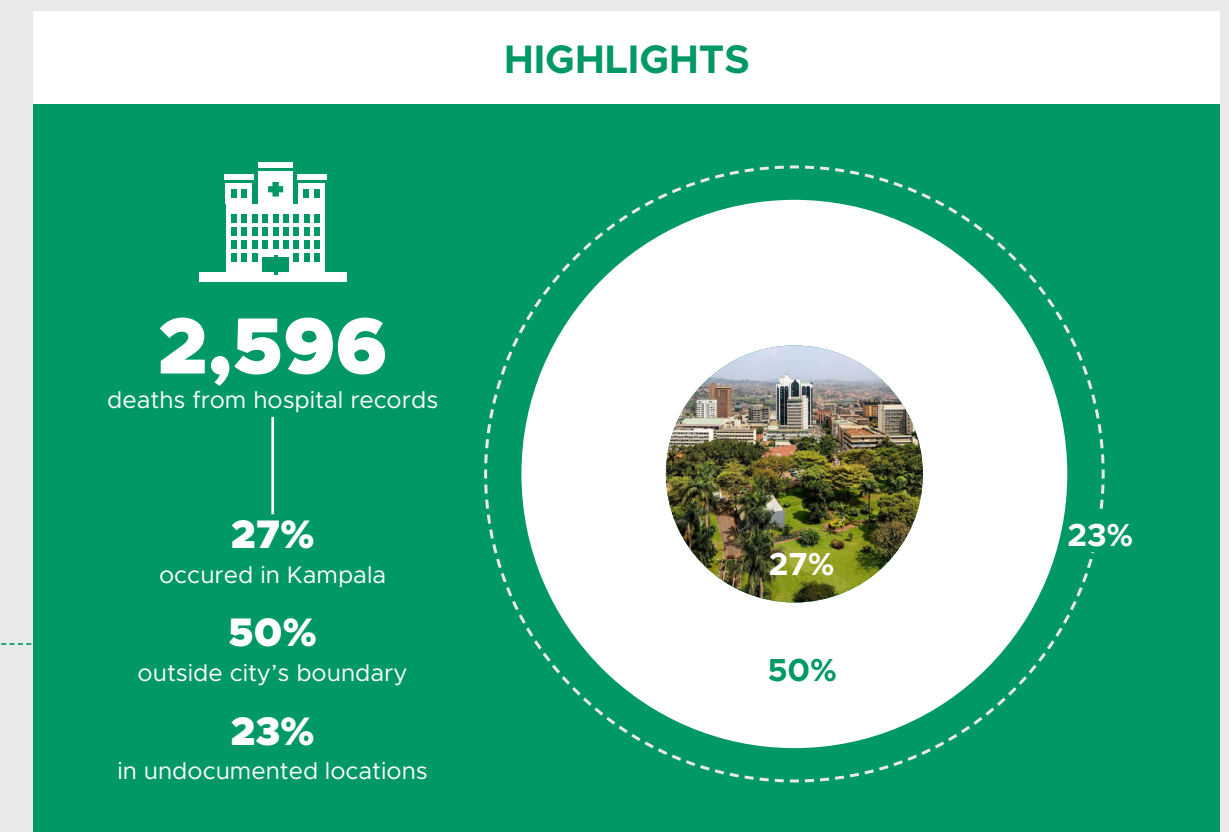


Figure 19. Deaths and injuries from hospital records, 2020-2021

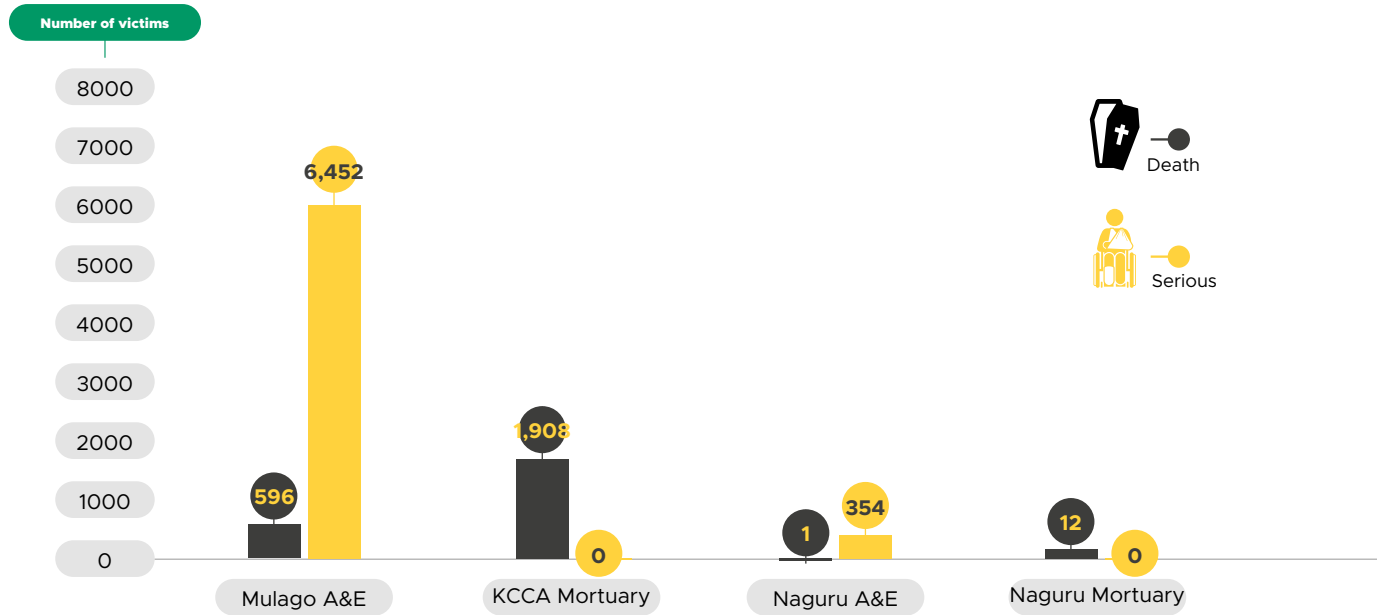


Figure 19

Figure 20 Distribution of hospital deaths by location of crash, 2020-2021

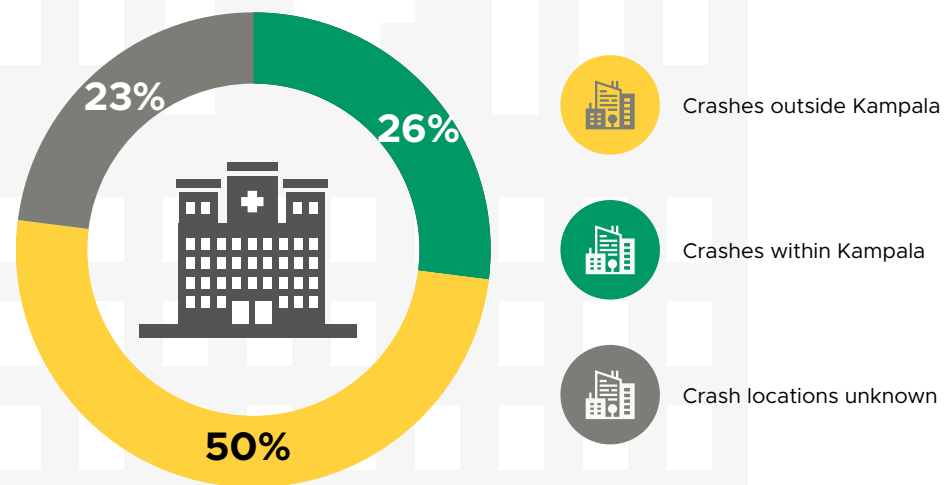


Figure 20

HOSPITAL DEATHS AND INJURIES BY ROAD USER TYPE

Hospital data on road traffic deaths and injuries by road user type showed a similar pattern to police records. The highest proportion of deaths were among vulnerable road users—pedestrians and motorcyclists/ tricyclists. (Figures 20 and 21).

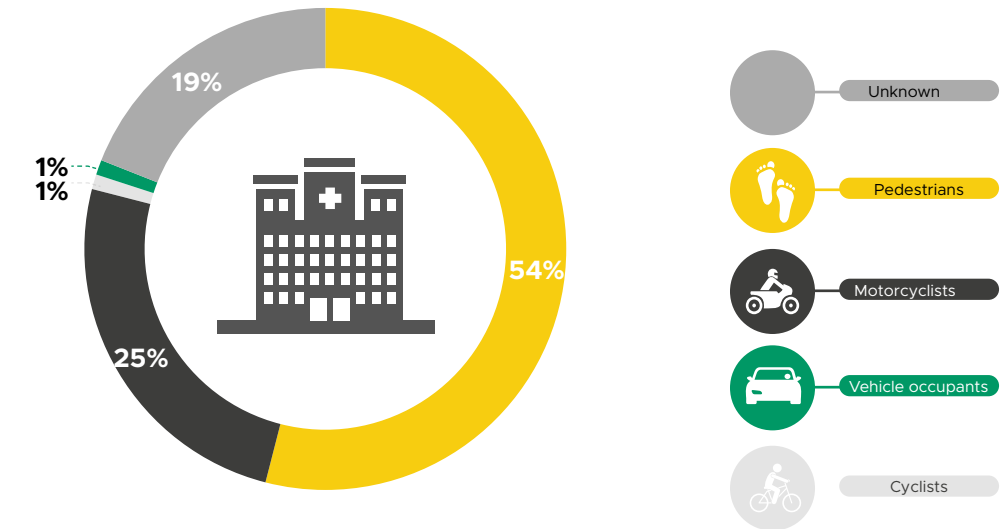


Figure 21

Hospital serious injuries by road user type, 2020-2021

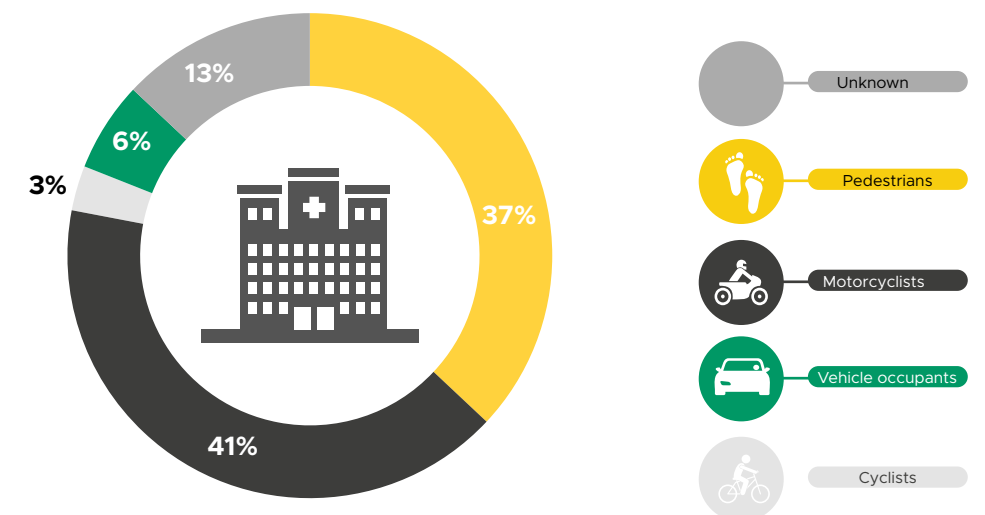


Figure 22



Of the 662 deaths in hospital records from crashes in Kampala, 146 were linked to police records — yielding a 22% matching rate. The capture-recapture analysis yielded a conservative estimate of 2,959 road traffic deaths in Kampala from 2020 to 2021 — a death rate of 85 per 100,000 population. Table 5 shows the characteristics of victims of road deaths from police records, hospital records and linked cases.

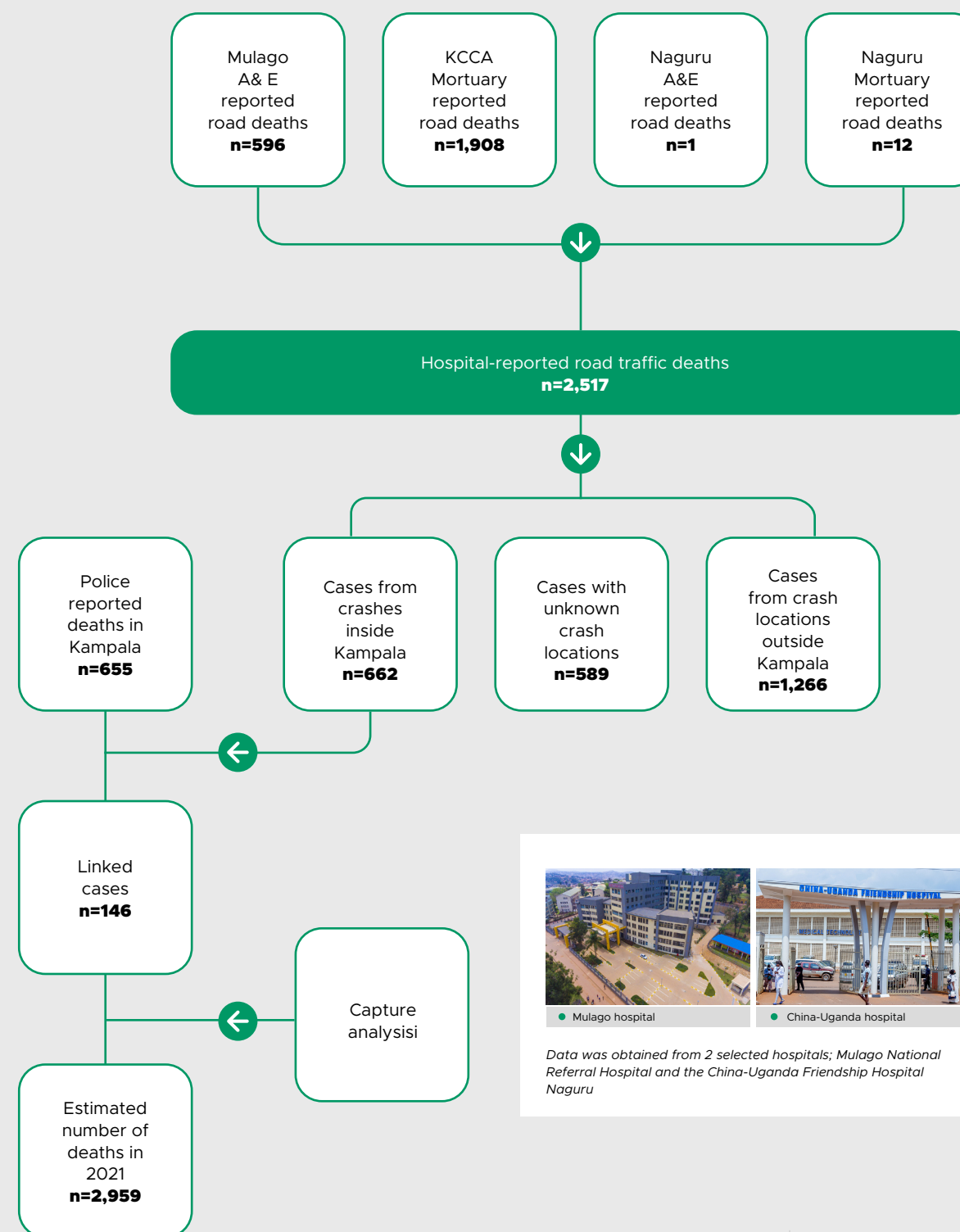
Characteristics of police and hospital reported road traffic deaths, 2020-2021

Characteristic	Police-reported deaths		Hospital-reported deaths		Linked		Estimated deaths (95% CI)
	n	%	n	%	n	%	
TOTAL	655	100	662	100	146	100	2,959 (2,587-3,331)
SEX							
Male	525	80	581	88	127	87	2,392 (2,073-2,711)
Female	99	15	81	12	19	13	410 (267-553)
AGE GROUP							
0-19	54	8	29	4	5	3	275 (71- 479)
20-39	211	32	208	31	46	32	943 (731- 1,155)
40-59	57	9	65	10	15	10	239 (149 -329)
60+	17	3	10	2	3	2	49 (10 - 88)
Missing	316	48	350	53	77	53	1,427 (1,182 -1,672)
ROAD USER TYPE							
Motorcyclist	321	49	166	25	34	25	1,415 (1,039 -1,791)
Pedestrian	265	40	356	54	81	56	1,158 (974 -1,342)
Vehicle occupant	37	6	6	1	4	3	53 (26-80)
Other/Unknown	32	5	134	20	24	16	178 (147-209)

*Death statistics are based on geocoded crash data, 2019–2022

Figure 22 shows a flow chart of reported road traffic deaths from both hospital and police records for 2020 and 2021.

Flowchart of reported road traffic deaths in Kampala, 2020-2021



Data was obtained from 2 selected hospitals; Mulago National Referral Hospital and the China-Uganda Friendship Hospital Naguru

DISCUSSION

Findings of the capture recapture analysis suggest an inconsistent reporting of road traffic deaths in Kampala. Fatalities in Kampala are estimated to be 4.5 times higher than police reports. This finding is higher than a previous nationwide study in Uganda, which suggested that there were 2.1 times more road traffic deaths than official police reports (Muni, 2021). Estimates from the global status report on road safety show that road traffic fatalities in Uganda was 3.4 times higher than the officially reported figure from police records in 2016 (WHO, 2018).

These findings highlight the need of integrating data from different sources to generate more precise estimates of the road traffic death burden. This, in turn, serves as a vital foundation for informed decision-making in healthcare, transport, and law enforcement.

Additionally, these findings emphasize the importance of high-quality data originating from both police and healthcare facilities. Achieving this can be facilitated by building capacity on improving data quality and completeness for the police and health sector.

LIMITATIONS

This study covered a limited geographical area, so caution should be taken when extrapolating these estimates to other cities in Uganda.

In addition, the process of checking for eligible cases varied among the two hospitals and two mortuaries due to differences in documentation and data storage, which may have led to some cases being excluded. Because of this, our estimation is a conservative estimate of mortality. If a nontrivial proportion of these unknown location cases were in Kampala, the estimate would increase significantly, as the estimation method is very sensitive to the quality of case matching.

CONCLUSIONS AND RECOMMENDATIONS

The inconsistent reporting of road traffic fatalities in police records highlights the significance of leveraging additional data sources to enhance the accuracy of death estimates. This approach is essential for achieving improved outcomes.

The following recommendations aim to improve data collection systems and data linkage processes and ensure that quality data is used to drive road safety interventions.

- 1 Efforts should be made to enhance data collection systems in major referral hospitals in Kampala. This improvement is essential to enable the consistent and standardized documentation of data, which, in turn, can inform planning, and effective decision-making.
- 2 Both police and hospital staff should consider the inclusion of a unique identifier, such as the national identification number, whenever it is available for victims or patients. This practice could enhance data linkage and integration.
- 3 Regular linkage of hospital and police data is essential for evaluating the extent of inconsistent reporting in official crash records and obtaining a more accurate estimate of the number of individuals killed or injured in road crashes. This is particularly crucial due to the severe social and economic repercussions of road crashes which affect individuals, households, and institutions.
- 4 Efforts to enhance road safety through road infrastructure improvements, enforcement, education, and other essential interventions should prioritize those most vulnerable to fatalities or injuries in road crashes. Achieving this requires a comprehensive approach that draws on data from multiple sources.

3

Road Injury Behavioural Risk Factors For Road Crashes



BACKGROUND

As part of BIGRS, Johns Hopkins International Injury Research Unit (JH-IIRU) collaborates with Makerere University, School of Public Health to conduct observational surveys on the prevalence of key risk factors. Five rounds of surveys have been completed for speeding and helmet use.

1. SPEEDING

The overall prevalence of speeding above the limit in Kampala was 6% in May 2023 (Figure 23). SUVs topped the list of vehicles observed to be speeding over the posted limit (Figure 24).

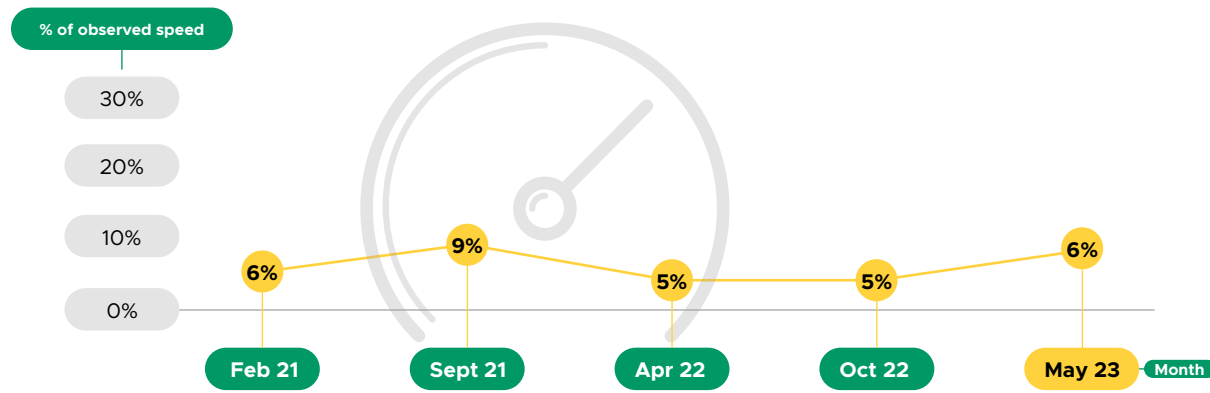


Figure 23

Prevalence of speeding by vehicle type, May 2023

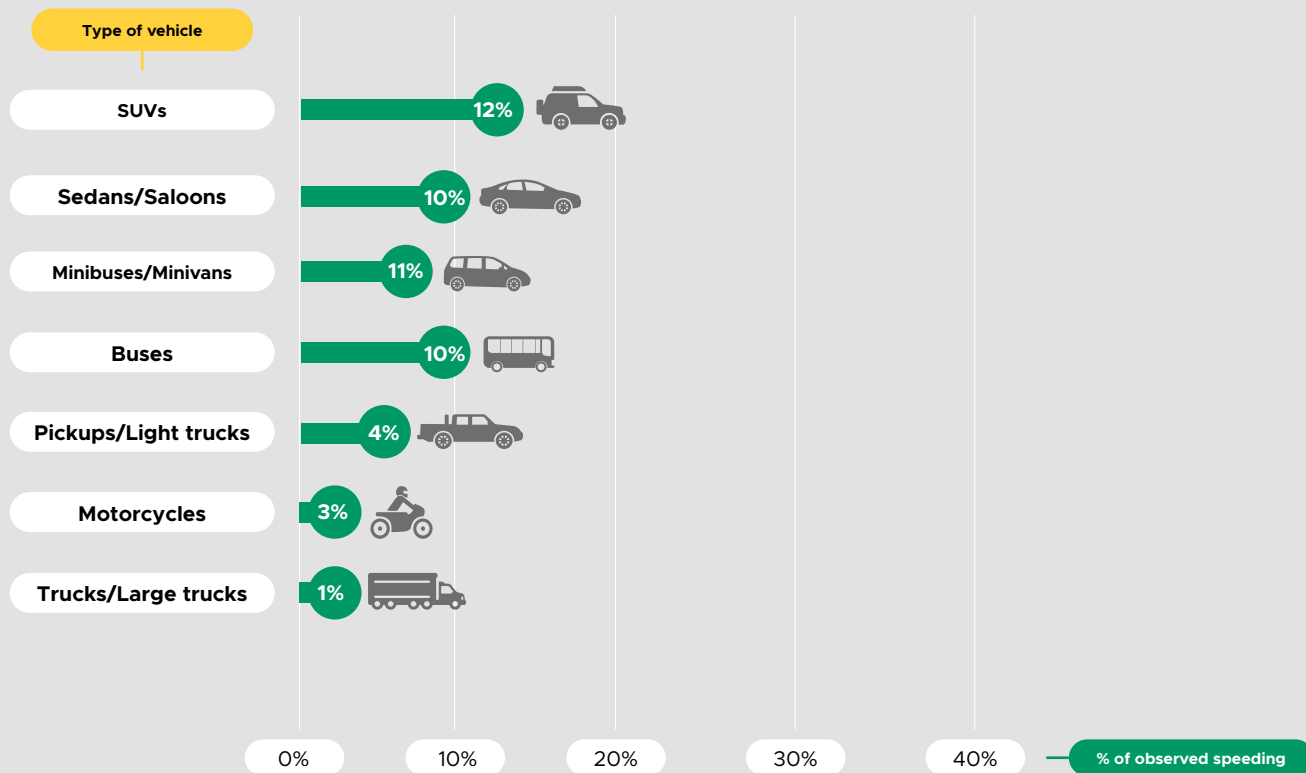


Figure 24

2. HELMET USE

Overall, 38% of motorcyclists were observed correctly wearing helmets in round five (May 2023). Drivers correctly wore helmets more frequently than passengers (55% and 3% respectively) (Figure 24). The increase in the correct use of helmets among drivers can be attributed to enhanced police enforcement on helmet use which started in October 2022.



Correct helmet use among motorcycle drivers and passengers

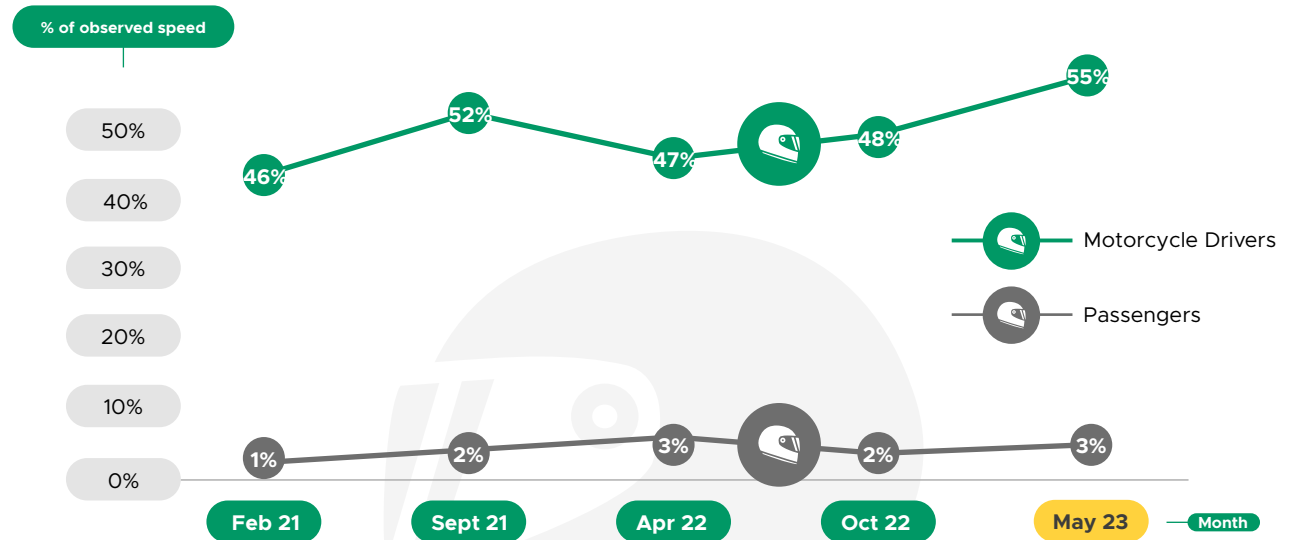


Figure 24

4

Selected Implemented Actions to Improve Road Safety in Kampala



ROAD SAFETY MANAGEMENT, SAFER STREETS AND MOBILITY

KCCA with support of the Government of Uganda and partners, undertook the following to improve road infrastructure.

- Painted pedestrian crossings along selected city roads.
- Painted yellow boxes at selected junctions, and issued the necessary guidelines on how to use them.
- Installed humps and speed limit signage along selected city roads.
- Implemented the 30kph speed limit as per UN recommendation along corridors where vehicles and pedestrians heavily mix.
- Conducted a boda boda count and rider training in the city in a bid to streamline the industry better.
- Participated in several consultation and road safety workshops with key stakeholders, Civil Society Organizations, Traffic Police, and Taxi and Boda Boda operators.
- Organized the Kampala Car free Day in partnership with World Resources Institute (WRI), UN-HABITAT, Institute for Transportation and Development Policy (ITDP), the BIGRS grantee Centre for Policy Analysis (CEPA), Uganda Insurers Association (UIA), and others. The event brought together partners from government such as commissioners from the Ministry of Works & Transport, Ministry of Lands Housing and Urban Development, CSOs as well as the private sector. A WRI lessons-learned report was drafted to guide further car free day engagements.
- Undertook road safety audits on upcoming road designs. , With support from partners on the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS), KCCA is in the process of developing a speed management guide. The guide being prepared with support from WRI and further engagements with key stakeholders will be undertaken to maximize ownership and co-creation of recommendations and next steps.
- Undertook with support from partners road safety inspections around several school zones. This aligns with and feeds into the action in the National Road Safety Action Plan's recommendation to improve safety around school zones. This task will then feed into the Ministry of Works and Transport's efforts to develop guidelines for establishing safe school zones in Uganda.
- Finalized the procurement of a consultant to establish the KCCA Road Safety Unit, funded by AfDB under the Kampala City Roads Rehabilitation Project, KCRRP.
- Installed bicycle racks along the NMT corridor and together with Traffic Police, enforced proper use of the corridor.



● Zebra crossings



● Bicycle racks



● Yellow boxes



● Awareness





ENFORCEMENT



145

officers in total were trained

- Intelligence-led policing (45 police officers)
- Strategic/operational planning (15 police officers)
- Speed and seatbelt enforcement (40 police officers)
- Helmet enforcement (45 police officers)



MASS MEDIA CAMPAIGN



KCCA, in collaboration with Safe Way Right Way, a road safety civil society organisation, launched Kampala's inaugural anti-speeding campaign, targeting male motorcyclists. This testimonial-driven initiative leveraged a mix of traditional, new, and alternative media platforms, including radio, television, billboards, street poles, and taxi branding. The campaign was strategically timed to coincide with the high-traffic during the festive season in December, which led to a 76% recall rate.

World Remembrance Day 2022

The world Remembrance Day was commemorated at Old Taxi Park in Kampala with heartfelt prayers and testimonies from survivors of road traffic accidents. Aligning with the theme of justice, this event gathered national road safety stakeholders and emphasized the crucial role of passenger service vehicle drivers in ensuring and championing road safety.

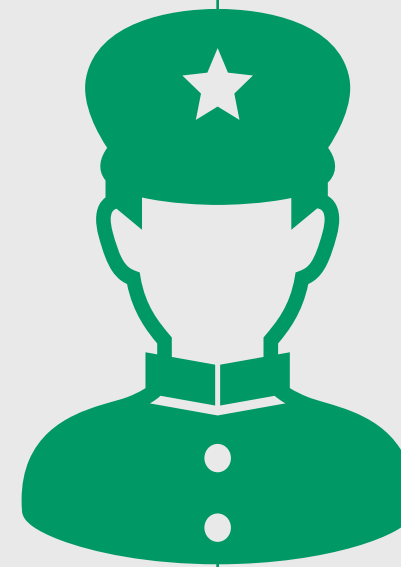


ROAD INJURY SURVEILLANCE SYSTEMS STRENGTHENING

The BIGRS road injury surveillance technical area, in collaboration with the KCCA GIS team supported the Directorate of Traffic and Road Safety, Uganda Police Force, implementing an electronic road crash data system. The implementation of the system is expected to significantly improve crash data quality and completeness, facilitate data analysis and reporting, and create a culture of routinely using an evidence-based approach to inform police operational planning. The Directorate of Information and Communication Technology, Uganda Police Force are supporting the implementation by ensuring data security.



The success of this two-day training program was made possible through the support and guidance of Dr. Raphael Awuah, Regional Technical Advisor (Africa), Vital Strategies.



50

officers trained

More than 50 traffic police officers in Kampala were trained on the use of a standardized data input tool to document crashes.

This activity marks a significant milestone in our ongoing efforts to enhance road safety and improve the efficiency of crash data management.





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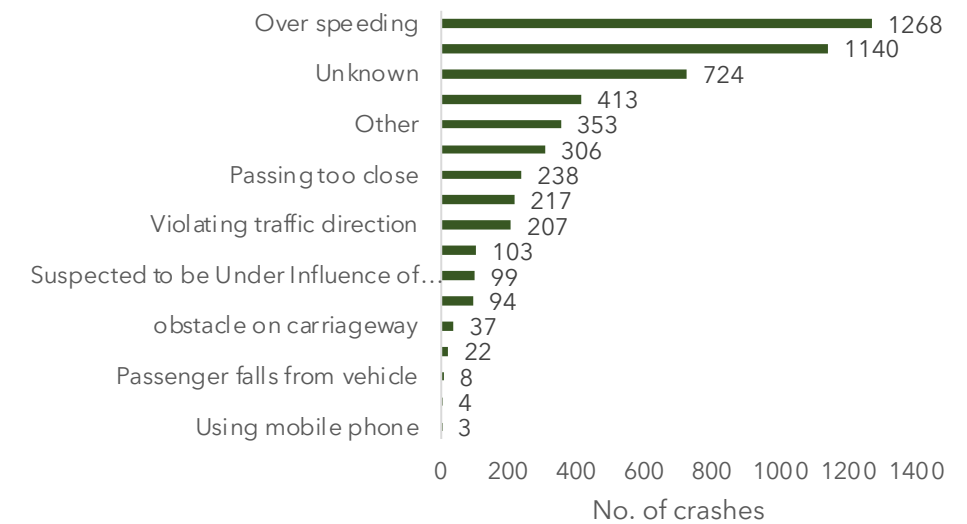
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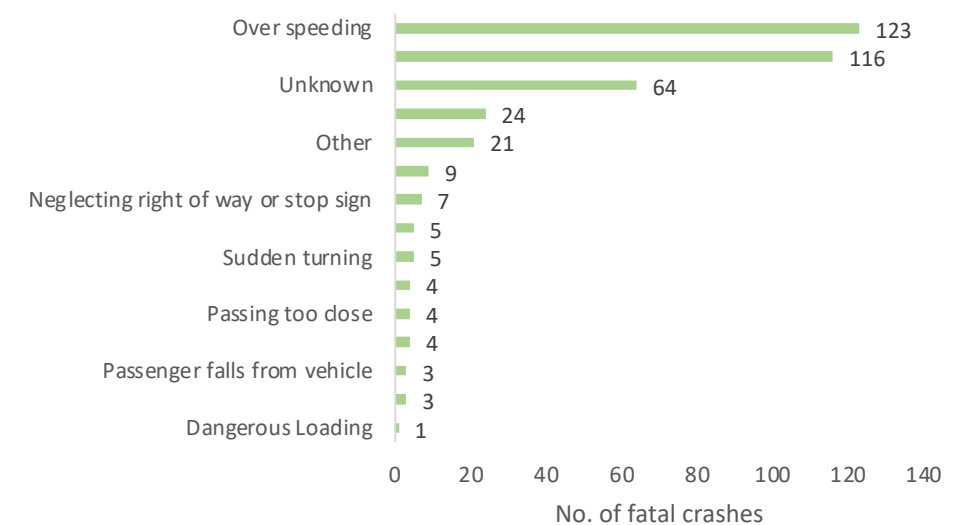


APPENDIX

Suspected causal factors for all crashes, 2022



Suspected causes of fatal crashes, 2022



Note: Suspected causes were not consistently documented in police records. These findings should be interpreted cautiously







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