ROAD SAFETY REPORT 2023

BENGALURU TRAFFIC POLICE

Contents

Abbreviations

BIGRS	Bloomberg Philanthropies Initiative for Global Road Safety
BTP	Bengaluru Traffic Police
HMV	Heavy Motor Vehicle
JH-IIRU	Johns Hopkins International Injury Research Unit
KSRSA	Karnataka State Road Safety Authority
LMV	Light Motor Vehicle
NIMHANS	National Institute of Mental Health and Neurosciences
ORR	Outer Ring Road

Foreword

Sri M N Anucheth, IPS
Joint Commissioner of Police
Bengaluru City Traffic Police

Karnataka has witnessed tremendous economic growth in the past two decades and particularly Bengaluru. This has been accompanied by infrastructure changes, including an expanded road network, and having nearly 1.4 crore vehicles added on the roads until January 2024. Unfortunately, these changes have come at an unacceptable cost to human life.

Bengaluru ranked second in road fatalities with 7.5% of Karnataka's share and lost 921 precious lives in 2023, highest in the last decade. This translates to 3 lives lost per day in the city. Road traffic deaths are a silent pandemic.

In 2023, there was a 19% increase in deaths in the city as compared to 2022. Speeding is the leading killer, with unclasped helmets also a cause of concern since motorcyclists are the most vulnerable road users after pedestrians.

These injuries and deaths put a strain on the healthcare infrastructure and socio-economy of the city as well Karnataka state. It is not just vehicle owners but other road users too, who have had to bear the brunt of crashes for life. According to the World Health Organisation (WHO), vulnerable road users such as pedestrians, cyclists and motorcyclists account for over half of road related deaths and injuries. In Bengaluru close to 90% of the fatalities were among motorcyclists and pedestrians which is worrying.

We know that crashes are largely preventable by using high quality data and implementing evidence based interventions by way of road engineering, enforcement of road safety rules and awareness on road safety to improve road user behaviour. The Bengaluru Traffic Police is committed to work with other relevant road safety stakeholders and prevent crashes and reduce the burden from injuries and deaths.

With the support of experts and BIGRS technical partners, we are working to achieve this target and envision safer streets, safer vehicles and responsible road user behaviour. I urge all the road safety stakeholders to utilise this report to identify and take action on road safety challenges and implement better road safety policies, and urge the citizens to follow the laws to save their lives and of others on the road.

Key Highlights & Recommendations

1. **Total 894 fatal crashes in 2023**: Bengaluru Traffic Police recorded 894 fatal crashes (resulting in 921 fatalities) in 2023, the highest since 2007, marking a 19% increase from 2022.

2. **Motorcyclists and pedestrians**: 59% of fatalities were among motorcyclists, and 31% were among pedestrians, with most fatalities occurring in North Division. There was a significant increase in motorcyclist (+24%) and pedestrian (+20%) fatalities compared to 2022.

3. **Motorcycles, LMVs and lorries impacting the most road users**: 55% of the fatalities were due to collisions with motorcycles, LMVs and lorries.

4. **Single-vehicle crashes**: 289 fatalities were from single-vehicle crashes, with 85% of these involving motorcyclists. Collision with fixed objects caused the majority of these crashes (57%).

5. **Younger males**: Over 90% of fatalities were in the working-age group (20-60 years), with 28% of victims aged 20-29. Men accounted for over 80% of the deaths.

6. **Weekend and night fatalities**: Fatalities peaked on weekends, especially Sunday, with 43% of deaths occurring between 6 pm and 2 am.

7. **Hit-and-run crashes**: 30% of fatalities were hit-and-run cases, with the North Division recording the highest number (83 fatalities) of such incidents.

8. **Division-wise fatalities**: BTP North Division accounted for over one-third of all fatalities, followed by West (23%) and South (22%) Divisions.

9. **Top 5 police stations in fatalities**: Yelahanka, Devanahalli, Kengeri, Whitefield, K R Puram.

10. **Top 5 high risk locations**: Byatarayanapura Junction, Sadahalli Gate, Summanahalli Junction, Veerasandra Bus Stop, Yelahanka Air Force Station BusStop.

11. **Top 5 high risk corridors**: Meenakunte Bus Stop, Kogilu Cross, Yelahanka Airforce Station Bus Stop, Raja Rajeshwari Nagar Arch, Kengeri Circle (Mysore Road).

12. **Speeding prevalence**: A significant 31% of observed vehicles exceeded the posted speed limits, with light vehicles (39%) being the most likely to speed. Expressways had the highest prevalence of speeding, with 37% of vehicles exceeding the limit and an average speed of 62 km/h, compared to 45 km/h on collector roads and 48 km/h on arterial roads.

13. **Helmet use**: Correct helmet use was alarmingly low, with only 34% of motorcycle occupants wearing helmets correctly. Afternoon hours (2:00-4:00 pm) saw the lowest usage, at just 27%, highlighting a crucial safety gap.

14. **Seatbelt and child restraint use**: Overall seatbelt use among all occupants was 46% (rear-seat passengers - 1%; drivers - 66%). Age-appropriate child restraint use for children under 12 years was very low (2%).

15. **Drivers' knowledge, attitudes, behaviors, social norms, and risk perceptions** - Speeding is widely recognized as risky yet remains socially accepted and common. While 96% of drivers acknowledged speeding increases crash/ injury risk, 73% felt comfortable exceeding speed limits, and 58% felt safe doing so. Only 21% knew the city's speed limits, of these, 26% followed them. Additionally, 25% admitted frequently speeding in the previous 2 months, and 59% said speeding was accepted in the city.

RECOMMENDATIONS:

1. **Improve pedestrian and motorcycle safety through infrastructure**: Since 59% of fatalities were among motorcyclists and 31% among pedestrians, clearly indicating the need to protect these two types of vulnerable road users, it is recommended to improve infrastructure like segregated motorcycle lanes along arterial roads, and traffic calming measures for motorcyclists. For pedestrians, accessible, safe and contiguous walking and crossing infrastructure be provided.

2. **Focus on high-risk locations and corridors**: Given constraints in resources, focus safety interventions on high-risk locations (e.g., Byatarayanapura Junction, Yelahanka Air Force Station) and corridors (e.g., Meenakunte Bus Stop, Kengeri Circle). Focusing on these locations will significantly reduce overall crash fatalities and injuries in the city.

3. **Enhance speed enforcement**: Given that 31% of vehicles exceed speed limits, particularly on expressways (37%), increasing enforcement through speed cameras and police presence would be recommended to reduce speeding. This is critical as speeding is a major contributor to fatalities and injuries.

4. **Promote helmet and seatbelt use**: The alarmingly low helmet use among motorcyclists (34%) and seatbelt usage among all occupants (46%) indicates the need for more awareness campaigns, stricter enforcement, and incentives to improve safety equipment adherence, particularly for motorcyclists.

5. **Targeted communications campaigns for young males**: With over 90% of fatalities involving people aged 20 to 60 years old, and 28% among those aged 20 to 29, road safety campaigns should specifically target young male drivers and riders to reduce high-risk behaviors.

6. **Improve knowledge and attitudes toward speeding**: With 73% of drivers feeling comfortable exceeding speed limits despite knowing the risks, further awareness and targeted enforcement, coupled with stronger penalties for violations, can help shift attitudes and behaviors surrounding speeding. It is also important to implement self-explaining and self-regulating roads to influence drivers' behavior on the road. Examples of which are speed calming measures to force drivers to move slowly especially in high-risk, pedestrian-heavy areas.

7. **Ensure timely payment of challans:** To deter speeding and other traffic violations, it is essential to implement measures that ensure challans (fines) are paid promptly. This could include streamlining the payment process, introducing penalties for delayed payments, and using digital platforms to facilitate easier tracking and settlement of fines, reinforcing accountability for unsafe driving behaviors.

8. **Address hit-and-run crashes**: With 30% of fatalities being hit-and-run cases, more efforts should be made to increase the city's surveillance on road incidents, particularly in high-risk areas like North Division. At the same time, crash investigation should be improved to better identify the details surrounding a crash. In addition, the public should be informed about the consequences of fleeing the scene.

1. Background

Road crashes are the leading cause of death worldwide for young people between 5 and 29 years of age. They are the 12th leading cause of death for all ages[1].

12,321 people died due to road crashes in Karnataka in 2023. Bengaluru city accounted for 7.5% of those deaths[2], with Bengaluru Traffic Police (BTP) registering 921 deaths in the year. This represents a worrying 19% annual increase in deaths due to road crashes in Bengaluru city.

This report presents an analysis of fatal crashes and fatalities registered by BTP and each of its constituent divisions in 2023. The report is aimed at enabling a better understanding of the 921 road crash fatalities by identifying vulnerable road user groups , risky days and times when crashes occur, high risk locations and dangerous stretches of key roads, to inform interventions to improve road safety in the city.

This report was prepared by analysing data collected and maintained by BTP.

2. Sources and Methods

Data Source

BTP collects crash data as soon as road crashes have been reported. Each crash is designated a record number and a case file, which includes documents generated during investigation.

This data collected in the crash case file includes both identifiable variables, such as names and address of persons involved in a crash, and non-identifiable variables such as time and date of crash, crash location coordinates, severity of the crash, information on vehicles involved in the crash, etc.

Non-identifiable data on fatal crashes registered in Bengaluru City was provided by BTP to the Karnataka State Road Safety Authority (KSRSA) in the form of crash case file documents. These documents were made available for the BIGRS embedded team of the Karnataka Government.

Data entry and cleaning process

Data from the crash case file was entered by a team of data entry staff into a relational database created using Microsoft Access. This relational data contains two separate worksheets enumerating the details of the crash event in one, vehicle and person details in the second sheet, linked using key variables.

Missing data and data quality issues identified during data entry were addressed with support from BTP. Further, the data was subject to interventions to standardise variables and prepare for analysis. Geocoding of crash locations, in cases where the Latitude and Longitude were not documented in the crash case file, was also undertaken.

Analysis

This cleaned data was analysed using R Programming and the Geographic Information System (GIS) mapping of fatal crashes was performed using QGIS. Both are open-source applications. The summary statistics were generated using Microsoft Excel.

Review

This report was reviewed and finalised by BTP.

Report Preparation

This report was made possible with the support of BTP, KSRSA and BIGRS.
Varun Sridhar, Surveillance Coordinator, BIGRS Bengaluru was responsible for data management and analysis, with support from Sara Whitehead, Ezequiel Dantas, Pratibha Pawar and Mirick Paala at Vital Strategies. Aparajita Ray, Prabhakar Bayari, Tushar Kaushik and Nidhi Vinay from the BIGRS Bengaluru team provided critical inputs and support throughout the preparation of this report. Data entry from the crash case file to the relational database was made by Tejashwini T M and Sadiyah Azra.

3. Overview

A worrying 894 fatal crashes were recorded by Bengaluru Traffic Police in 2023, the highest since 2007 according to the BTP website. This represents an increase in fatal crashes for the second consecutive year since 2021 (Fig-1).

Fatal crashes and fatalities increased by 19% in 2023 compared to 2022.

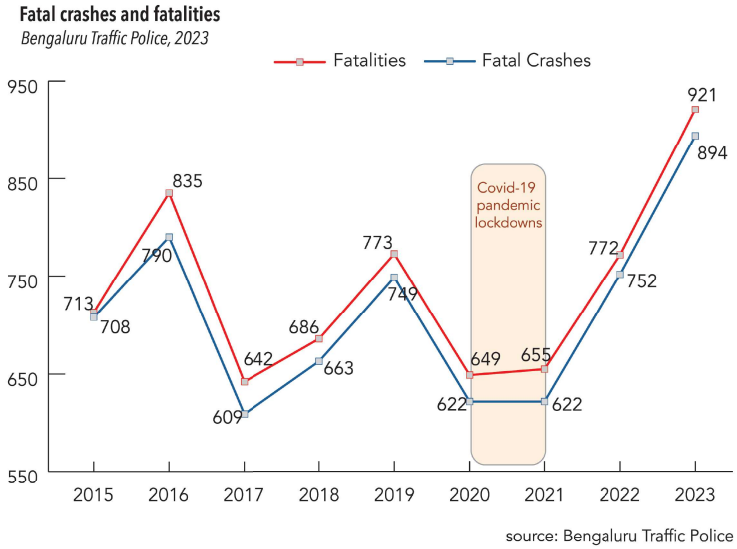


Fig-1: Fatal crashes and fatalities

Bengaluru city is divided into four Divisions (North, West, South, and East). More than one-third of all fatal crashes occurred in Bengaluru City were from BTP North Division. BTP West and South Divisions recorded 23% and 22% of the fatal crashes respectively (Fig-2).

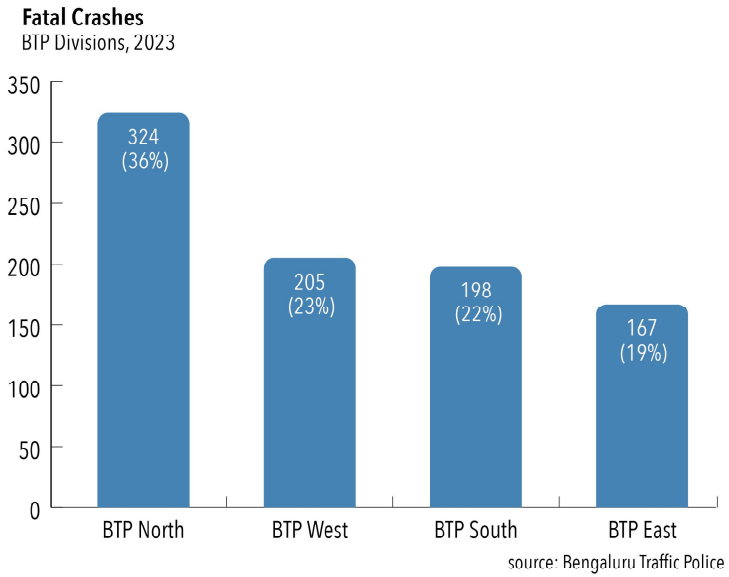


Fig-2: Fatal crashes, by BTP Divisions

The following choropleth maps show the fatalities from different police station areas within BTP Divisions. In general, police stations closer to the centre of the city recorded fewer fatalities than those farther away.

BTP North Division

Yelahanka traffic police station recorded the highest number of crash fatalities in BTP North division in 2023. Nearly half (48%) of all fatalities were recorded by Yelahanka, Devanahalli and Chikkajala traffic police stations (Table-1).

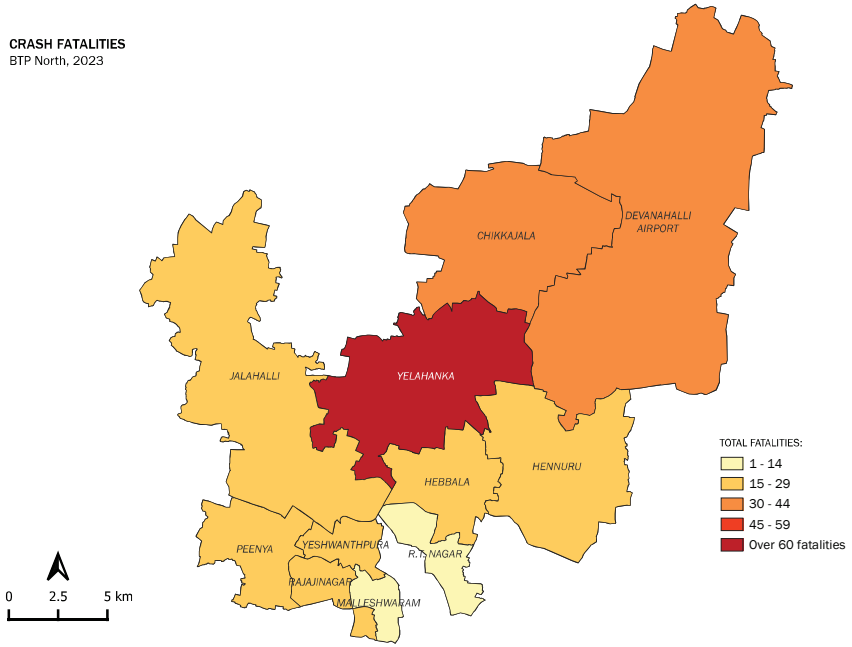


Fig-3: Fatalities recorded by traffic police stations, BTP North

Table-1: Top-5 Traffic Police Stations, BTP North – by fatalities recorded

RANK	TRAFFIC POLICE STATION	FATALITIES (2023)
1.	Yelahanka	63 (18.9%)
2.	Devanahalli	58 (17.4%)
3.	Chikkajala	39 (11.7%)
4.	Peenya	31 (9.3%)
5.	Jalahalli	30 (9%)

BTP West Division

About 46% of all crash fatalities in BTP West Division were recorded by Kengeri and Kamakshipalya traffic police stations (Table-2). Many fatalities recorded by traffic police stations in this division were further away from the centre of the city.

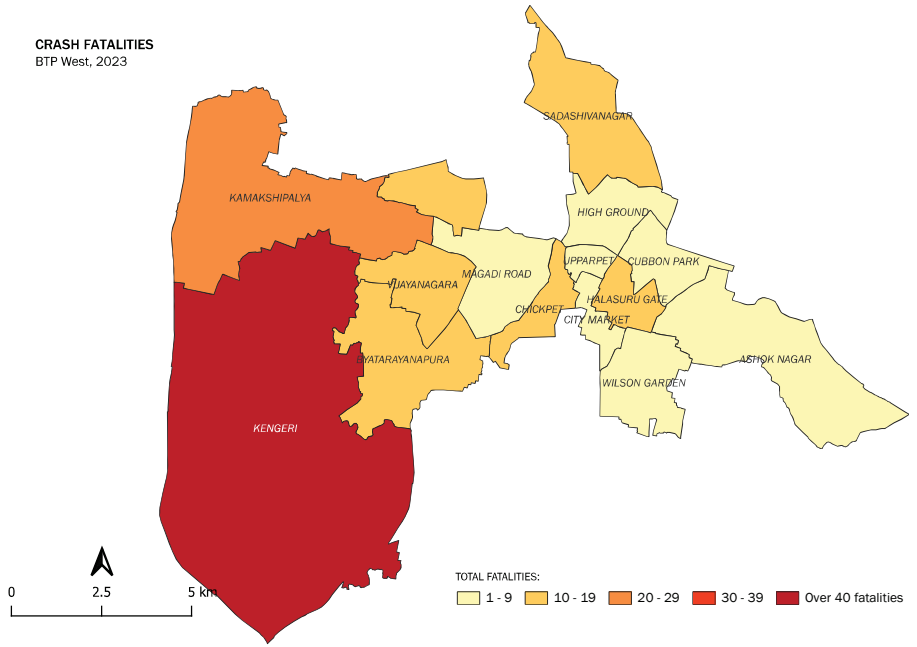


Fig-4: Fatalities recorded by traffic police stations, BTP West

Table-2 Top-5 Traffic Police Stations – BTP West, by fatalities recorded

RANK	TRAFFIC POLICE STATION	FATALITIES (2023)
1.	Kengeri	59 (28.1%)
2.	Kamakshipalya	38 (18.1%)
3.	Byatarayanapura	20 (9.5%)
4.	Vijayanagar	18 (8.6%)
5.	Sadashivanagar	11 (5.2%)

BTP South Division

Electronic City traffic police station accounted for a fifth of all crash fatalities recorded in BTP South. Newly formed Thalagattapura traffic police station, and KS Layout traffic police station together recorded another 21% of fatalities in BTP South (Table-3). (Note: The jurisdiction of KS Layout traffic police station includes that of Thalagattapura traffic police station until 2022.)

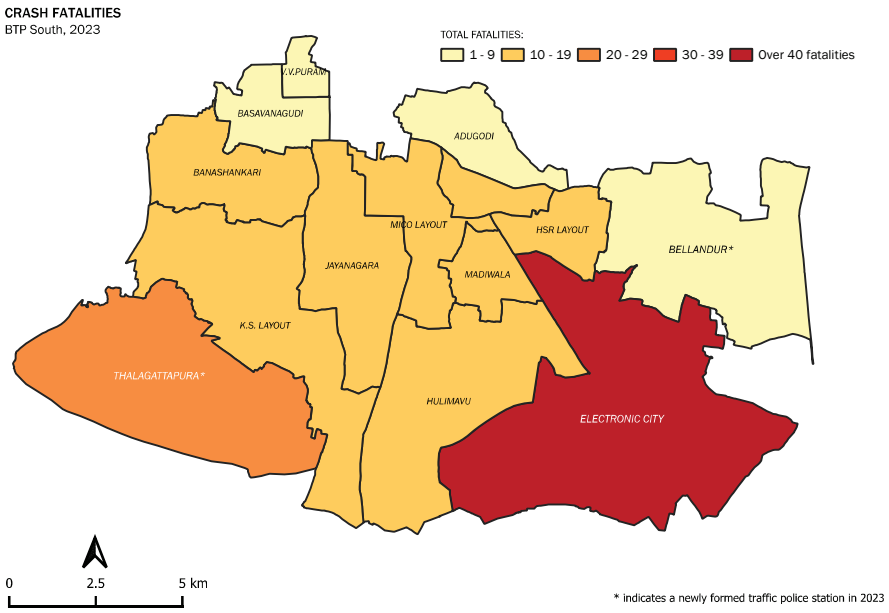


Fig-5: Fatalities recorded by traffic police stations, BTP South

Table-3 Top-5 Traffic Police Stations – BTP South, by fatalities recorded

RANK	TRAFFIC POLICE STATION	FATALITIES (2023)
1.	Electronic City	40 (19.4%)
2.	Thalagattapura	25 (12.1%)
3.	K S Layout	20 (9.7%)
4.	Hulimavu	17 (8.3%)
5.	Madiwala	17 (8.3%)

BTP East Division

The trend of more crash fatalities occurring further away from the city centre was also observed in BTP East Division, with Whitefield and KR Puram accounting for half (51%) of all fatalities in this division.

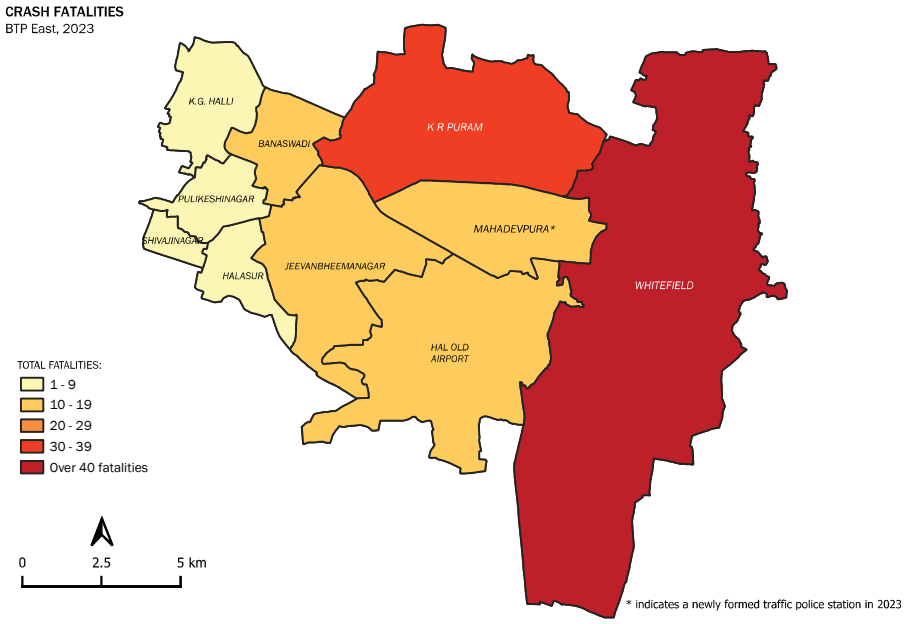


Fig-6: Fatalities recorded by traffic police stations, BTP East

Table-4 Top-5 Traffic Police Stations – BTP East, by fatalities recorded

RANK	TRAFFIC POLICE STATION	FATALITIES (2023)
1.	Whitefield	44 (25.9%)
2.	K R Puram	42 (24.7%)
3.	HAL Airport	17 (10%)
4.	Banaswadi	15 (8.8%)
5.	Mahadevapura	12 (7.1%)

4. Fatal Crashes and Fatalities, by road user groups

542 (59%) motorcyclists and 282 (31%) pedestrians were killed in fatal crashes recorded by BTP in 2023, representing nearly 9 out of 10 lives lost on the roads of Bengaluru City (Fig-7).

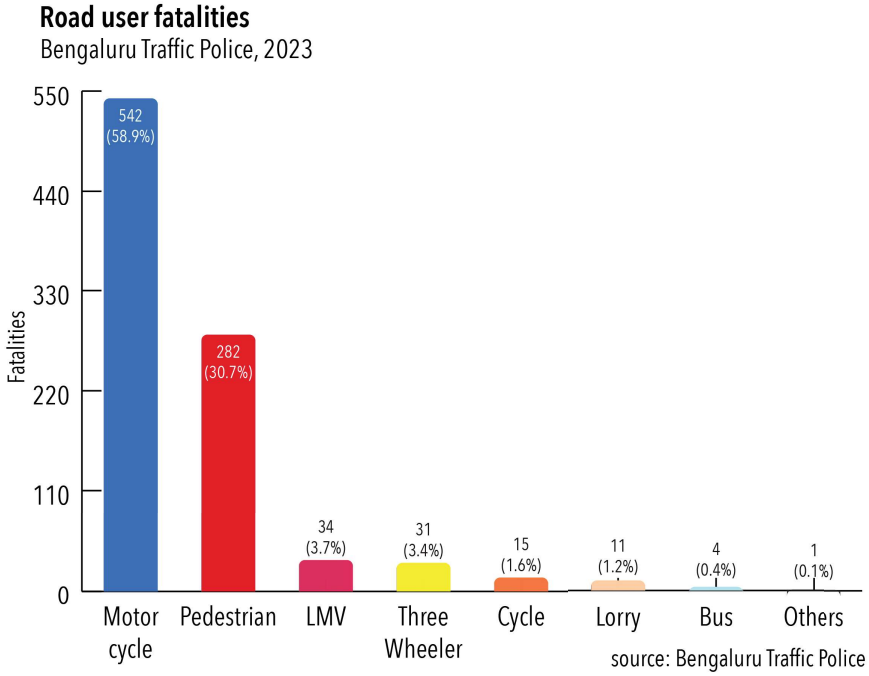


Fig-7: Road user fatalities, 2023

The distribution of fatalities by road user type by BTP Divisions is represented below. Most motorcyclist and pedestrian deaths occurred in areas under BTP North Division.

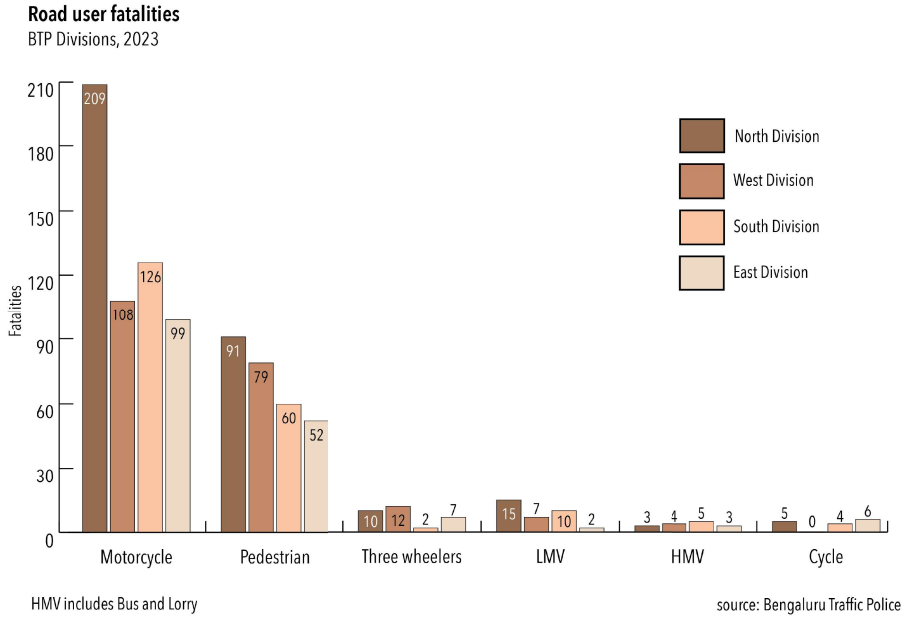


Fig-8: Road user fatalities, by BTP Divisions, 2023

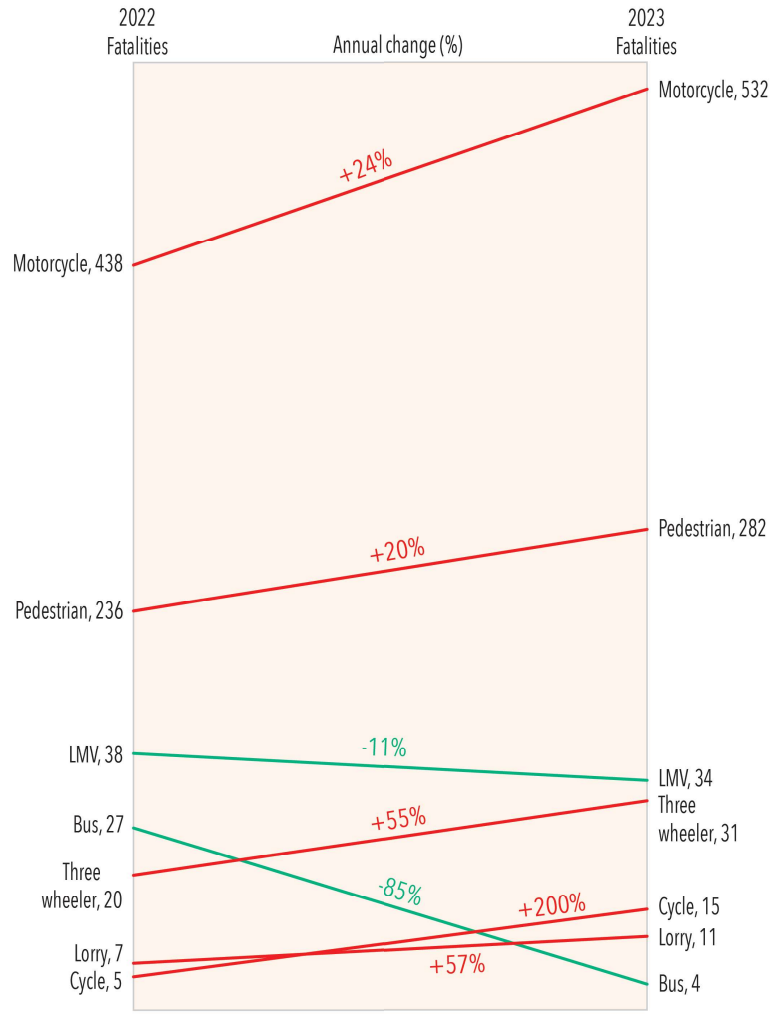
4.1 Annual change in share of road user fatalities

Motorcyclist and pedestrian deaths increased by 24% and 20% respectively in 2023 when compared to 2022. The highest annual increase in deaths were, however, seen among cyclists (+200%) and three wheelers (+55%) (the increase in absolute number of deaths was small in both categories).

Only Buses and LMVs recorded a slight annual decrease in the number of road user fatalities, with deaths decreasing by 85% and 11% respectively.

Annual change in road user fatalities

Bengaluru Traffic Police, 2022-23



Red and Green lines indicate a respective increase and decrease in the number of fatalities for the corresponding road user group.

source: Bengaluru Traffic Police

Fig-9: Annual change in road user fatalities

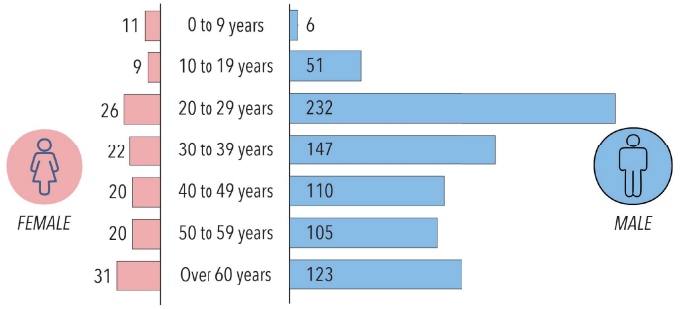
5. Age and Gender of persons involved in fatal crashes

5.1 Distribution of fatalities, by age and gender

Over 90% of all fatalities in Bengaluru City in 2023 were those of persons in the working age groups (20 to 60 years of age) (Fig-10). Many victims (28%) were between 20 and 29 years old. Over 8 out of 10 road user deaths were those of men.

Fatalities, by age and gender of victims

Bengaluru Traffic Police, 2023



Age and Gender were unknown in the case of 8 victims out of 921 fatalities

source: Bengaluru Traffic Police

Fig-10: Fatalities, by age and gender of victims

5.2 Age of impacting vehicle drivers involved in fatal crashes

Impacting vehicle drivers or riders in fatal crashes often belonged to younger age groups. Out of the 842 impacting vehicle drivers, 62% were between 20 and 39 years of age (Fig-11a).

Nearly half (47%) of all impacting vehicle drivers in the 20 to 39 years age group were motorcyclists.

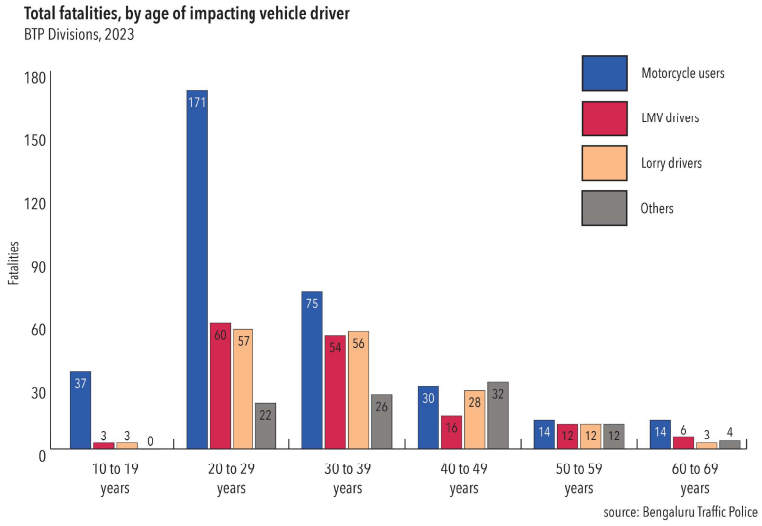


Fig-11a: Pedestrian Fatalities, by age of impacting vehicle drivers

Similarly, impacting vehicle drivers aged between 20 and 39 years were responsible for 48% of all pedestrian deaths. Nearly half of these impacting vehicle drivers were motorcyclists, 28% drove LMVs and 24% drove lorries (Fig-11b).

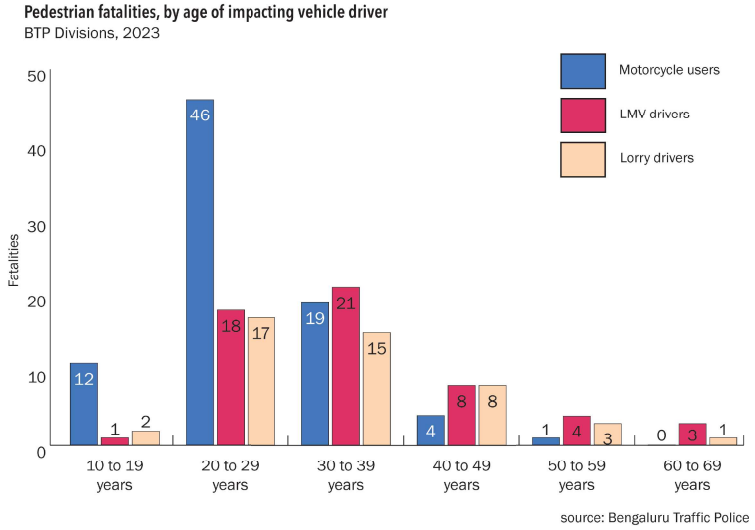


Fig-11b: Pedestrian Fatalities, by age of impacting vehicle drivers

6. Distribution of fatalities, by day and time of crash

About 47% of all crash fatalities occurred on Saturday, Sunday and Monday. Sundays were the least safe day to be on the roads of Bengaluru City (Fig-12).

More lives were lost between 6pm and 10pm, and 12am to 2am (43%) than during the rest of the day.

Distribution of fatalities, by day and time of crash
Bengaluru Traffic Police, 2023

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	TOTAL
12am to 2am	25	16	14	17	16	15	18	119
2am to 4am	5	5	9	7	3	5	4	38
4am to 6am	11	5	14	8	7	4	9	58
6am to 8am	8	10	5	12	7	7	11	60
8am to 10am	14	6	10	10	8	10	8	66
10am to 12pm	13	15	6	8	9	9	9	69
12pm to 2pm	13	13	18	12	6	12	7	81
2pm to 4pm	9	16	11	7	9	12	7	71
4pm to 6pm	18	10	7	10	12	12	14	83
6pm to 8pm	21	12	10	17	10	14	19	103
8pm to 10pm	15	18	16	14	13	18	22	116
10pm to 12am	10	7	7	6	12	6	9	57
TOTAL	162	133	125	128	112	124	137	

source: Bengaluru Traffic Police

Fig-12: Distribution of fatalities, by day and time of crash

7. Hit and Run in fatal crashes

In 2023, 30% of fatalities were due to hit-and-run crashes (Fig-13).

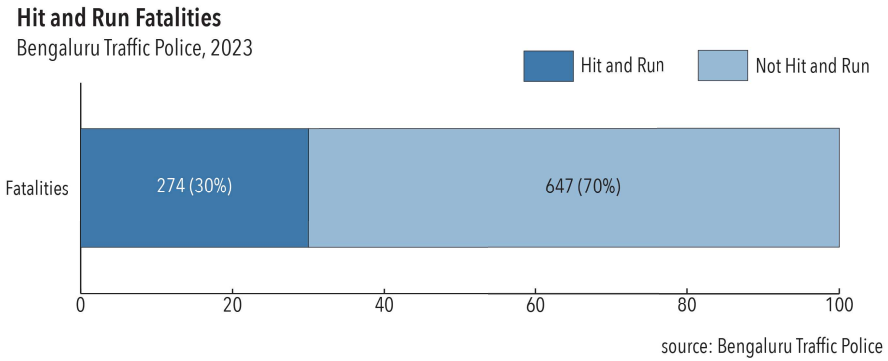


Fig-13: Hit and run fatalities, 2023

While BTP East Division had the highest proportion of hit-and-run crashes (42%), BTP North Division recorded the highest number of hit-and-run crashes, where 83 lives were lost due to hit-and-runs (Fig-14).

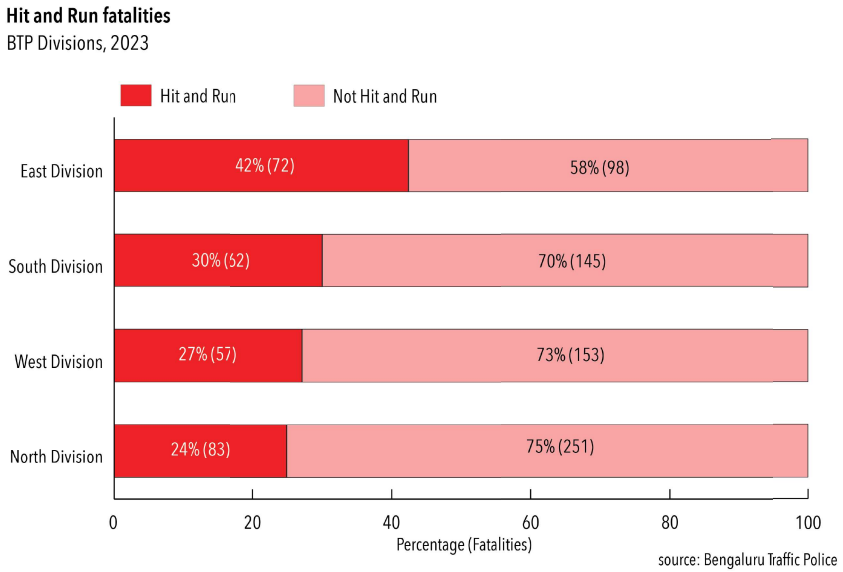


Fig-14: Hit and Run fatalities, by BTP Divisions, 2023

8. Who-hit-whom matrix

Single vehicle crashes contributed to nearly a third of all 921 fatalities, and motorcyclists accounted for 85% of these fatalities. For more on single vehicle crashes, please refer to Chapter 9 of this report. Motorcyclists alone caused nearly 20% of all fatalities.

Most motorcyclist fatalities were due to single vehicle crashes (45%), and collisions with lorries (19%) and LMVs (14%) (Fig-16). Similarly, many pedestrian fatalities were caused due to collisions with motorcyclists (35%), and LMVs (23%). Pedestrian fatalities have been covered in detail in Chapter 8 of this report.

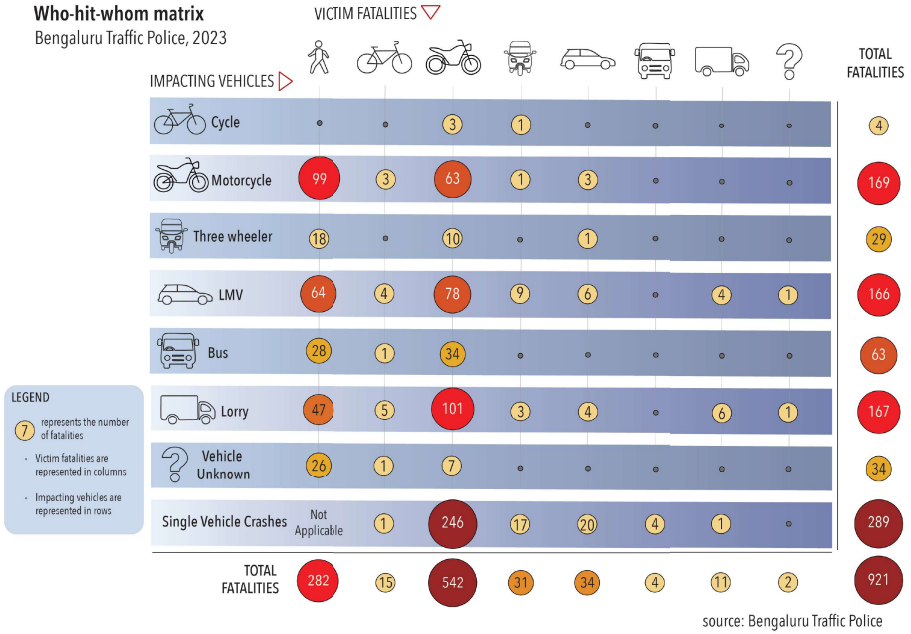


Fig-15 Who-hit-whom matrix

9. Motorcyclist fatalities

Motorcycle fatalities increased by 24% in 2023 when compared to 2022. This chapter provides details about the 542 motorcyclist fatalities that occurred in Bengaluru City in 2023.

9.1 Motorcyclist fatalities, by age

Over 60% of motorcyclists killed were between 20 and 39 years of age (Fig-16). About 80% of all motorcyclist fatalities were in the working age groups (20 to 59 years of age). Age of the motorcyclist was unknown in the case of 5 (1%) victims.

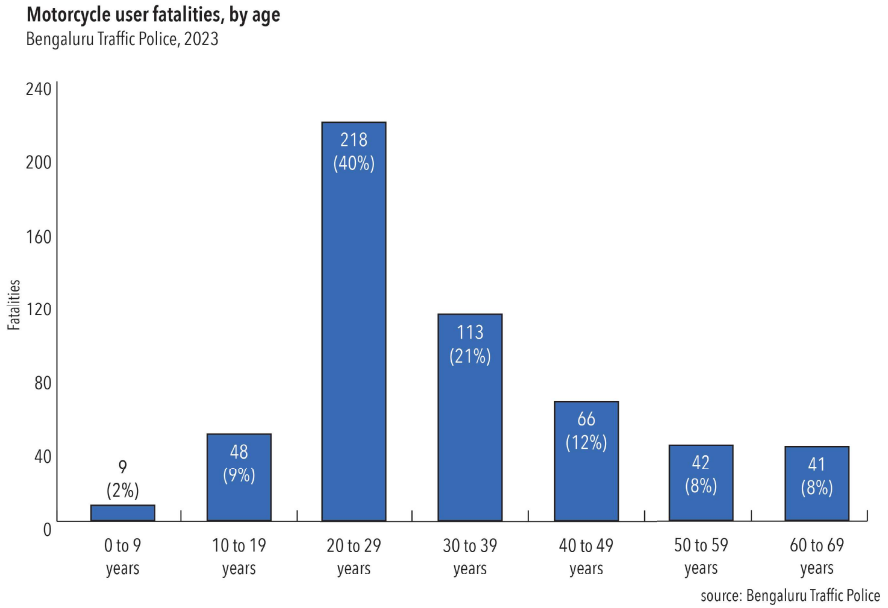


Fig-16: Motorcyclist fatalities, by age

9.2 Location of motorcyclist fatalities

9.2.1 BTP North Division

Motorcyclist fatalities occurred throughout BTP North Division, often on collector and local roads. They were, however, concentrated along Ballari Road and the sections of Outer Ring Road.

Single vehicle motorcycle crashes were prevalent on the Outer Ring Road (ORR) and Ballari Road up to Chikkajala. Beyond Chikkajala, motorcyclist fatalities were the result of collisions with LMVs, Lorries and other motorcycles (Fig-17).

Many motorcyclist fatalities along the ORR occurred during late evening through the night hours (marked in dark blue and black in Fig-18). On Ballari Road, many motorcyclist fatalities occurred during daylight hours (marked in yellow and orange in the map below) except for the stretch between Yelahanka and Chikkajala.

9.2.2 BTP West Division

Motorcyclist fatalities in BTP West Division mostly occurred on sub-arterial, collector and local roads.

Most motorcyclist fatalities in this jurisdiction were due to single vehicle crashes (Fig-19).

Motorcyclist fatalities along Mysuru Road and other major roads occurred mostly during the daylight hours, while those on smaller roads occurred predominantly in the darker hours (Fig-20).

9.2.3 BTP South Division

In BTP South Division, motorcycles were involved in fatal collisions with other vehicles (such as LMVs) on arterial roads – Hosur Road and ORR (Fig-21).

Single vehicle motorcycle crashes and crashes with other motorcycles occurred more on collector and local roads in this jurisdiction.

Motorcyclist fatalities occurring in the darker hours were more common along collector and local roads in BTP South Division (Fig-22).

9.2.4 BTP East Division

Motorcyclist fatalities in BTP East Division were predominantly a result of single vehicle motorcycle crashes (Fig-23).

These crashes occurred along Old Airport Road, Old Madras Road and ORR.

Many fatal motorcycle crashes along Old Madras Road occurred during daylight hours, while those along other arterial roads occurred mostly during the darker hours (Fig-24).

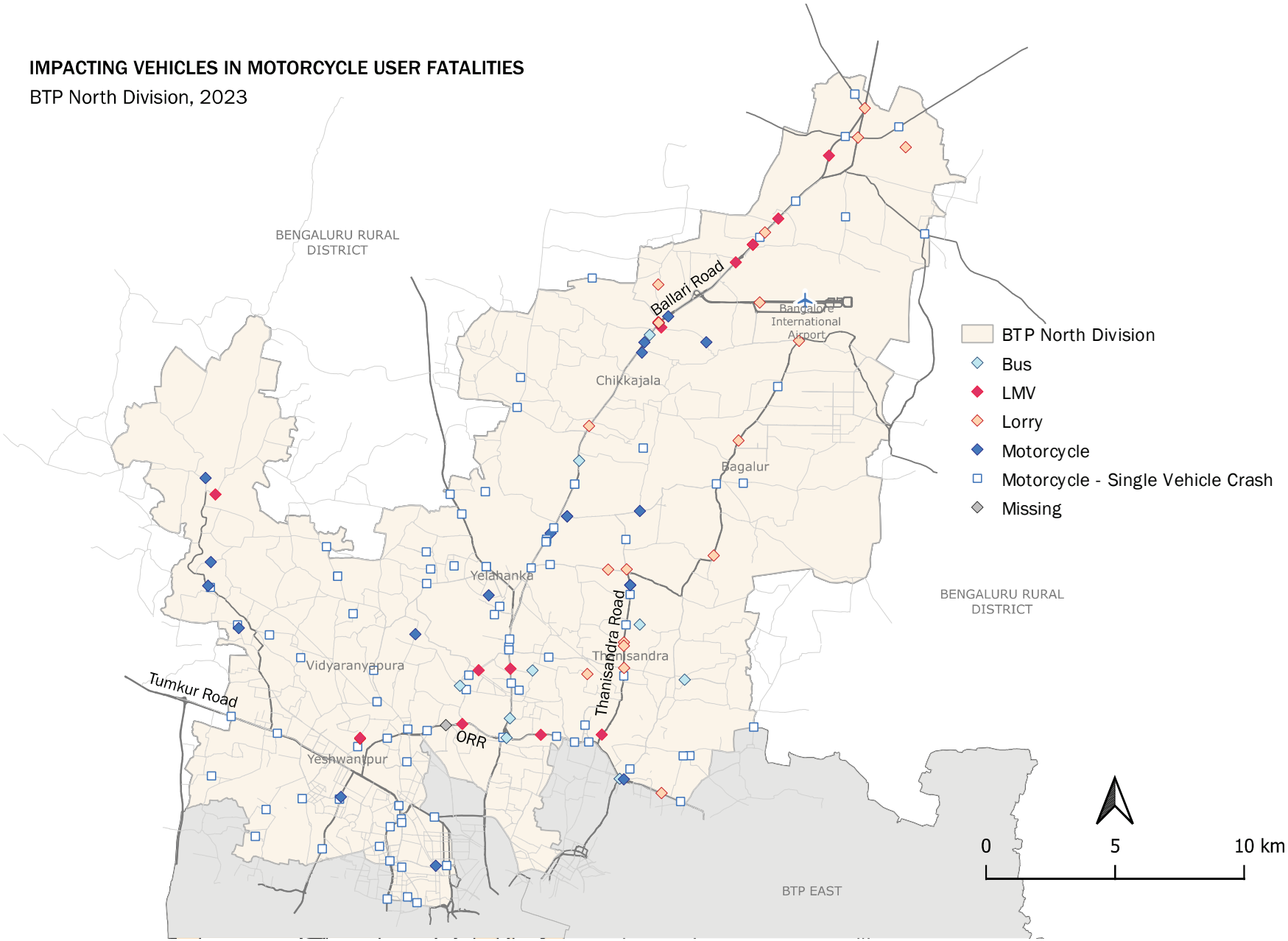


Fig-17: Impacting vehicles in motorcyclist fatalities, BTP North

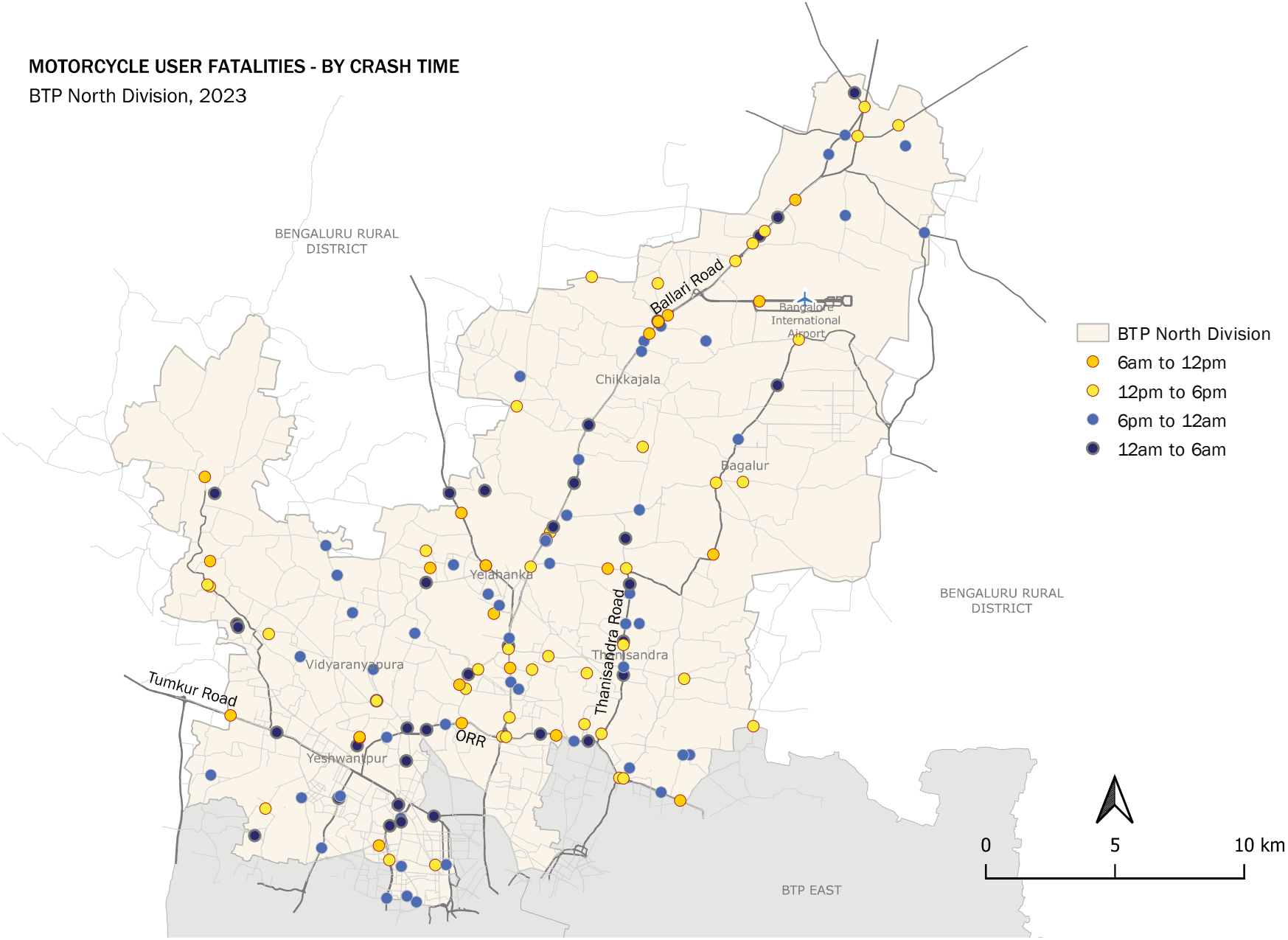


Fig-18: Motorcyclist fatalities - by crash time, BTP North

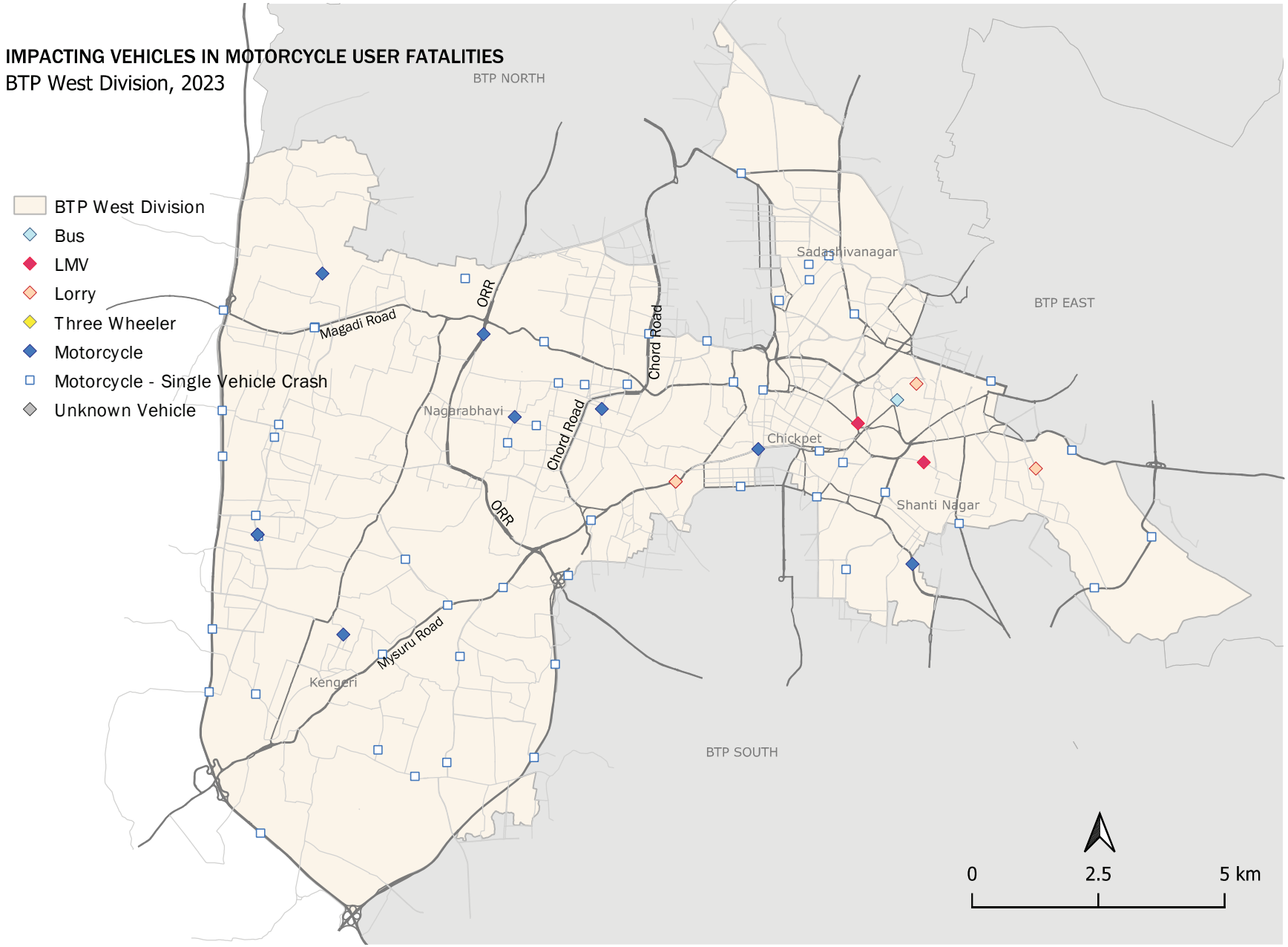


Fig-19: Impacting vehicles in motorcyclist fatalities - BTP West

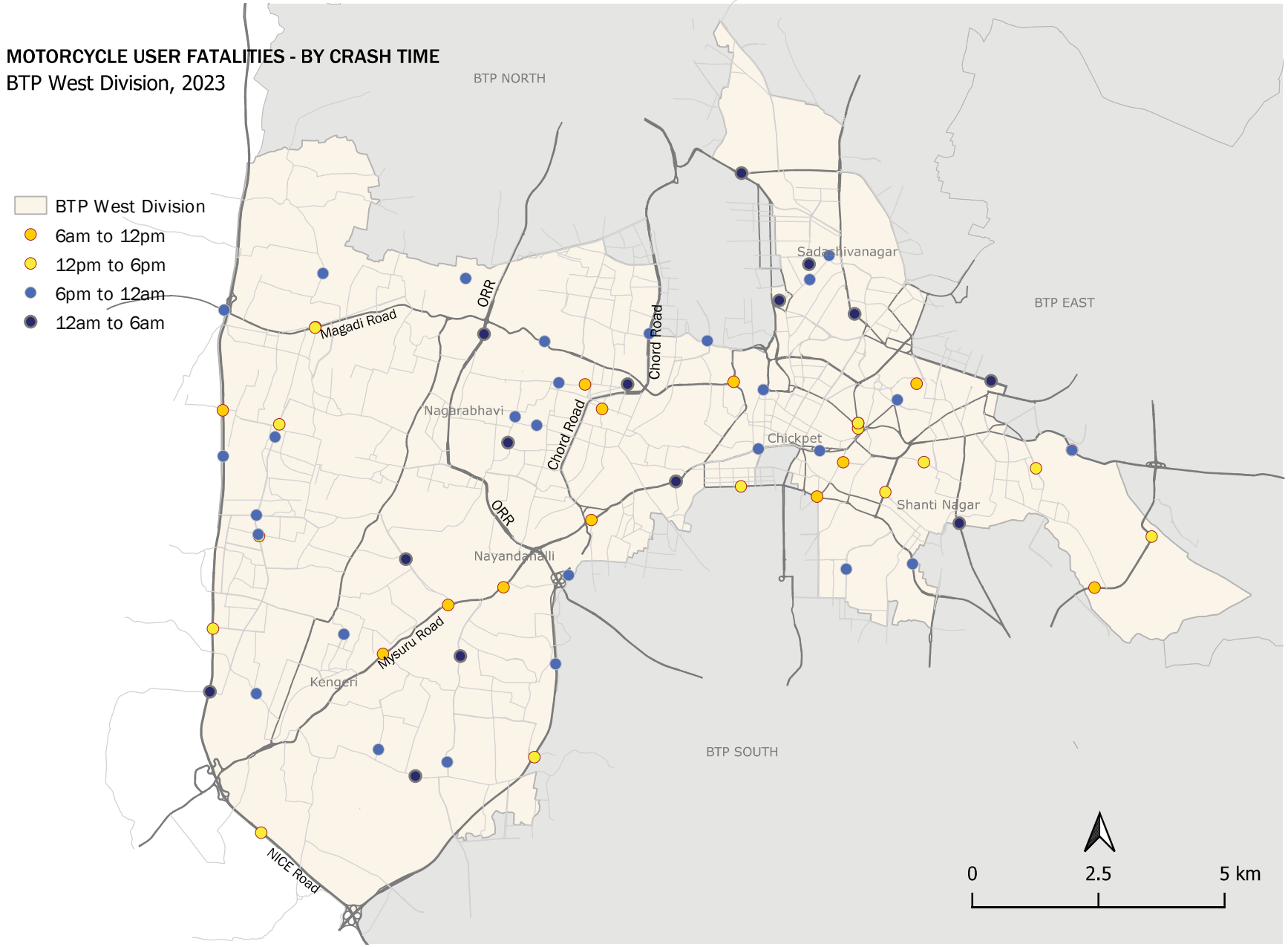


Fig-20: Motorcyclist fatalities - by crash time, BTP West

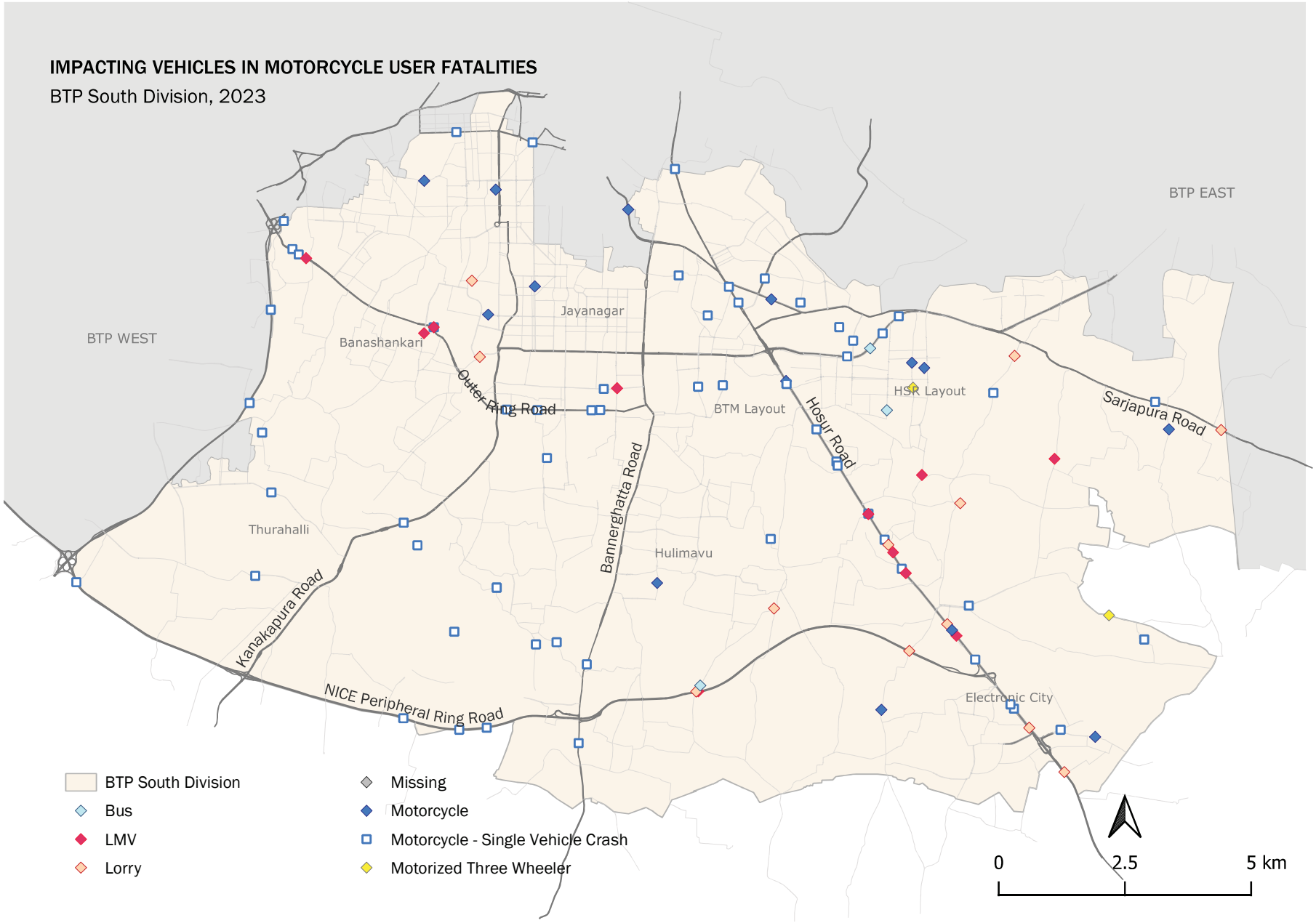


Fig-21: Impacting vehicles in motorcyclist fatalities, BTP South

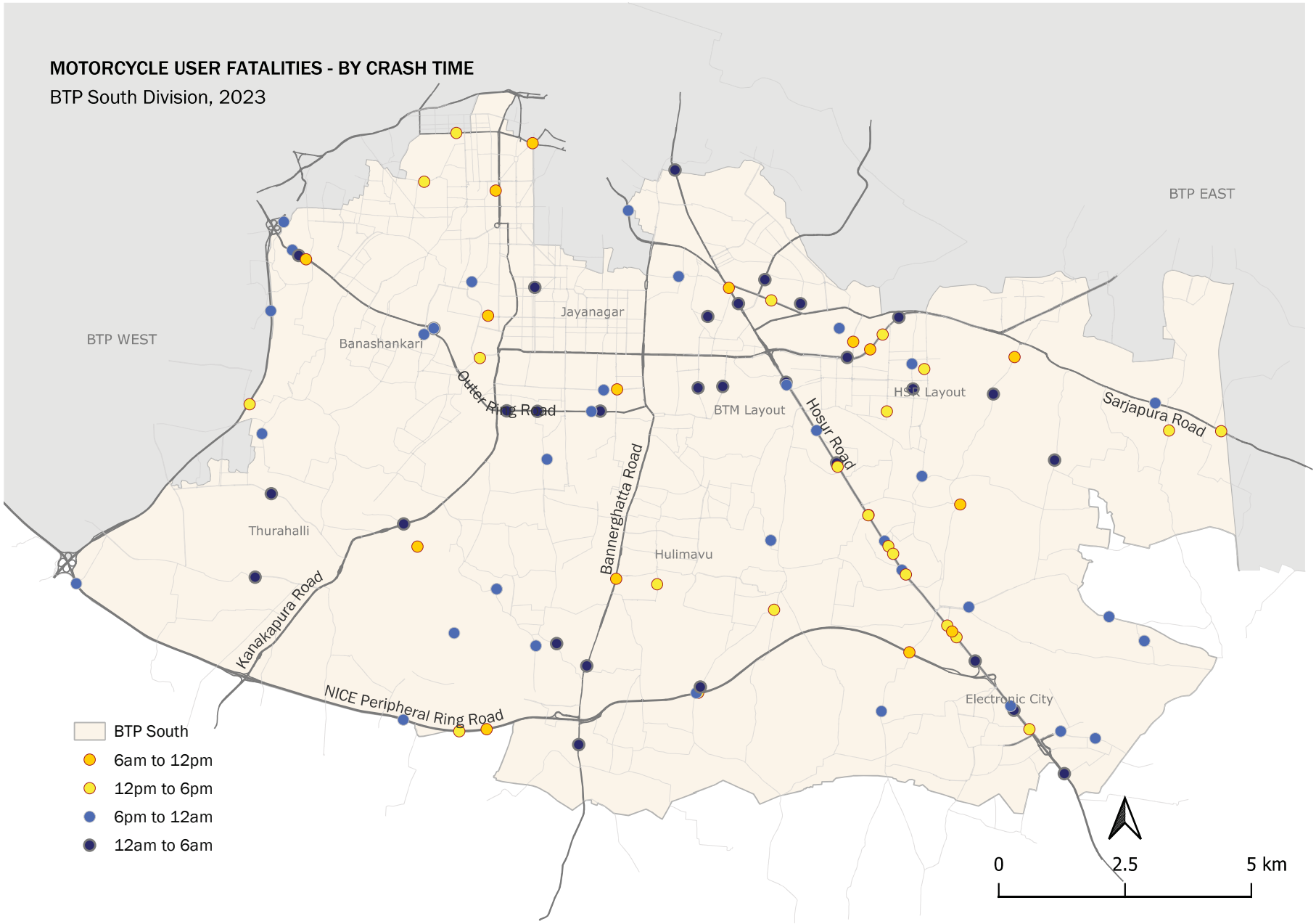


Fig-22: Motorcyclist fatalities - by crash time, BTP South

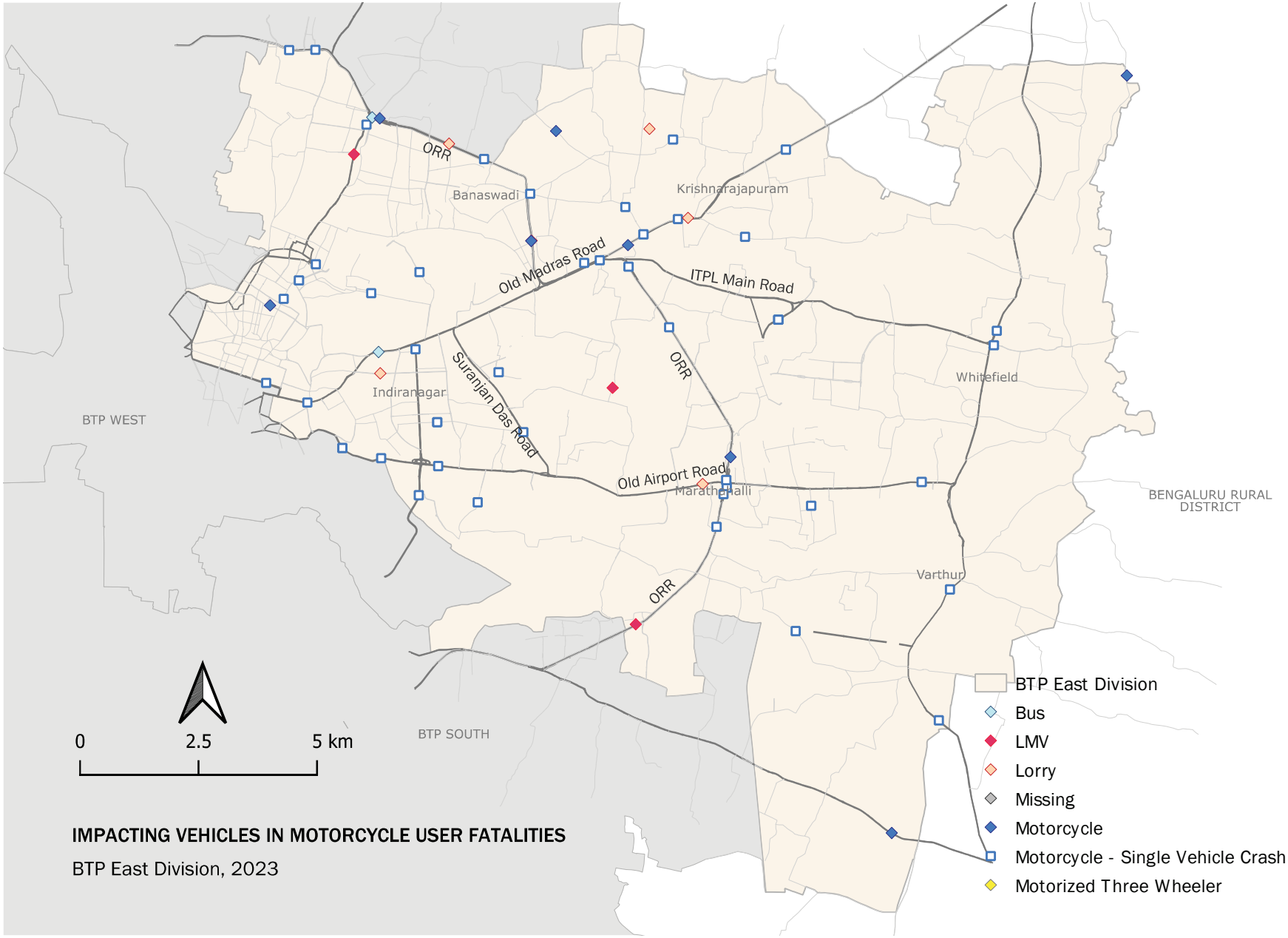


Fig-23: Impacting vehicles in motorcyclist fatalities, BTP East

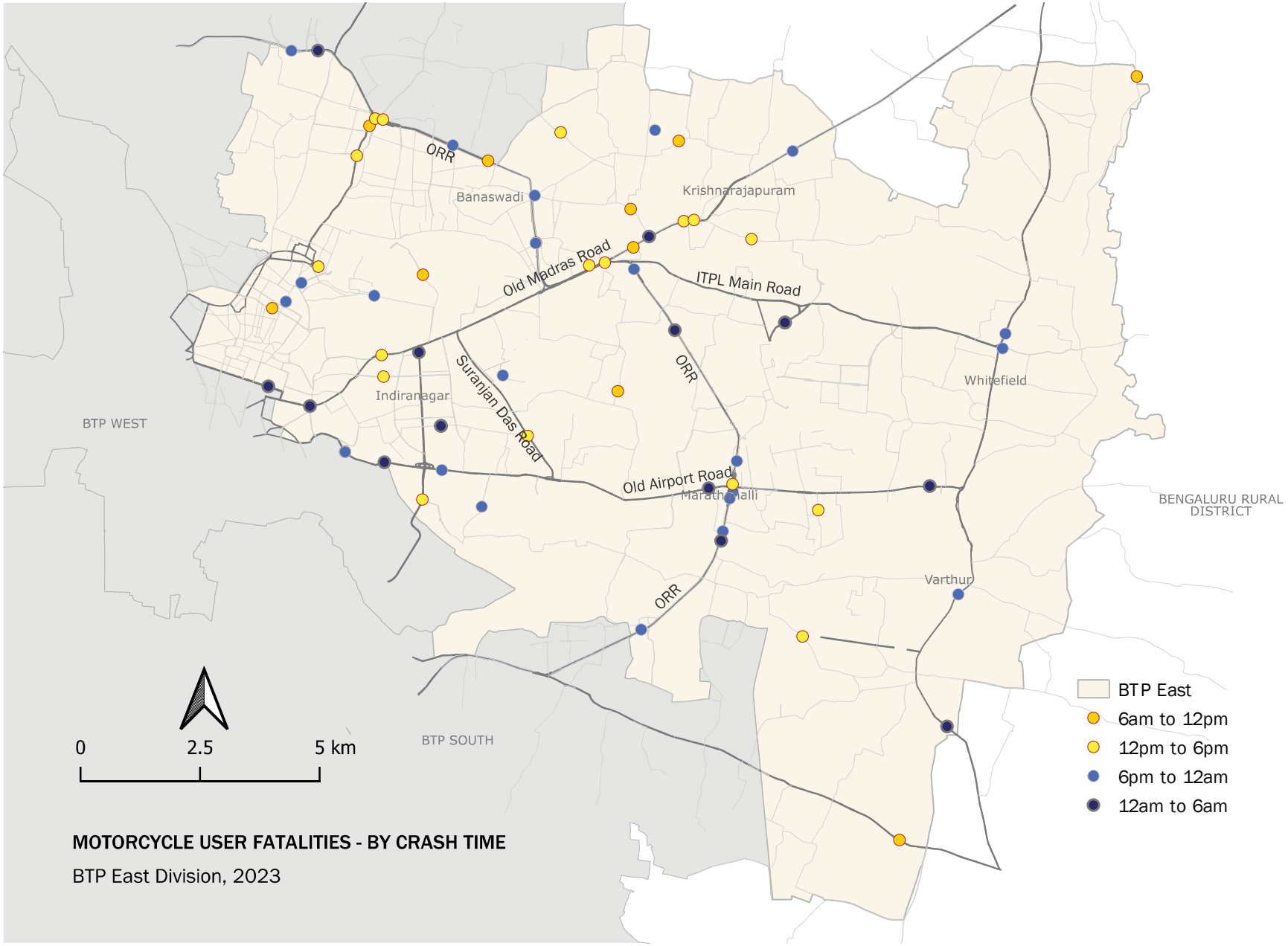


Fig-24: Motorcyclist fatalities - by crash time, BTP East

10. Pedestrian Fatalities

10.1 Pedestrian fatalities, by age

Total 282 pedestrian fatalities occurred in 281 fatal crashes registered by BTP in 2023. BTP's North Division recorded the highest number of fatal crashes (91, 32%) with pedestrians. Together, BTP's North and West Divisions accounted for 60% of all fatal crashes with pedestrians (Fig-25).

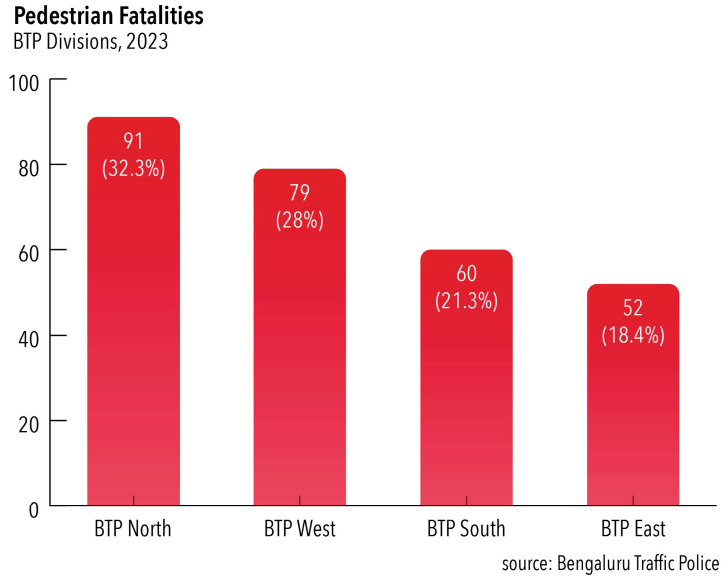


Fig-25: Pedestrian fatalities, by BTP Divisions

10.2 Pedestrian fatalities, by impacting vehicle

Over a third of all pedestrian fatalities in 2023 were due to collisions with motorcycles. Together, motorcycles, LMVs and lorries accounted for 75% of all pedestrian deaths.

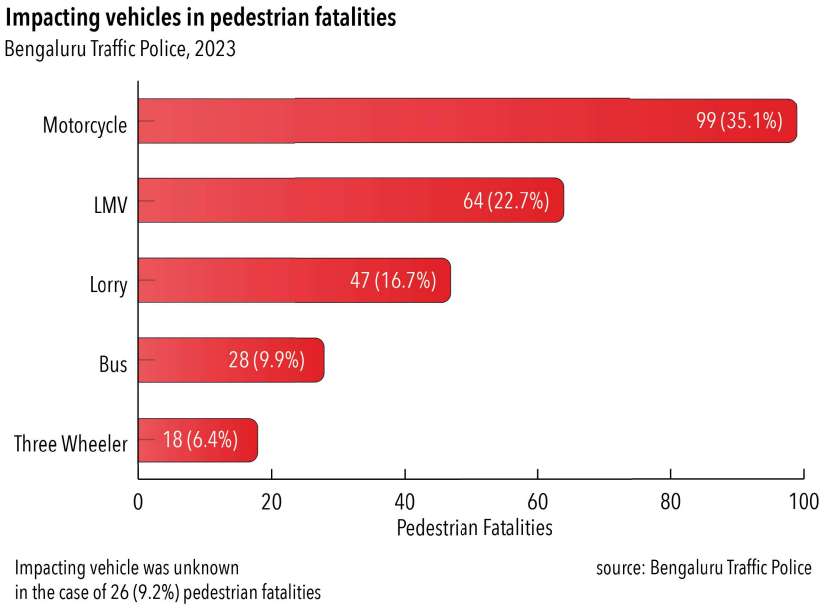


Fig-26: Impacting vehicles in pedestrian fatalities

10.3 Location of Pedestrian Fatalities

10.3.1 BTP North Division

Pedestrian fatalities in BTP North Division were often due to collision with LMVs along Ballari Road, lorries along Tumkur Road and motorcycles on collector and local roads (Fig-27).

Pedestrians were killed in fatal crashes throughout the day in this jurisdiction (Fig-28).

10.3.2 BTP West Division

In BTP West Division, pedestrians died due collision with LMVs, primarily on arterial roads. Motorcycles fatally hit pedestrians throughout the jurisdiction. Considerable number of pedestrian deaths due to collisions with three wheelers is notable in this jurisdiction (Fig-29).

10.3.3 BTP South Division

Lorries and LMVs fatally hit pedestrians in the BTP South Division primarily along Outer Ring Road, NICE Road and other arterial stretches. Motorcyclists fatally hit pedestrians, primarily along collector and local roads (Fig-31).

Pedestrian fatalities in this jurisdiction occurred mostly during daylight hours. Those that occurred in the darker hours of a day were often along collector and local roads, and a few stretches of the Outer Ring Road and NICE Road (Fig-32) ..

10.3.4 BTP East Division

Pedestrians were fatally hit by lorries along stretches of Old Madras Road beyond KR Puram. Fatal crashes involving motorcycles occurred throughout the BTP East Division, on arterial and local roads alike (Fig-33).

Similar to BTP South Division, pedestrian fatalities in this jurisdiction were the result of fatal crashes occurring in the daylight hours along arterial roads. Those that occurred in the darker hours were primarily along collector and local roads (Fig-34).

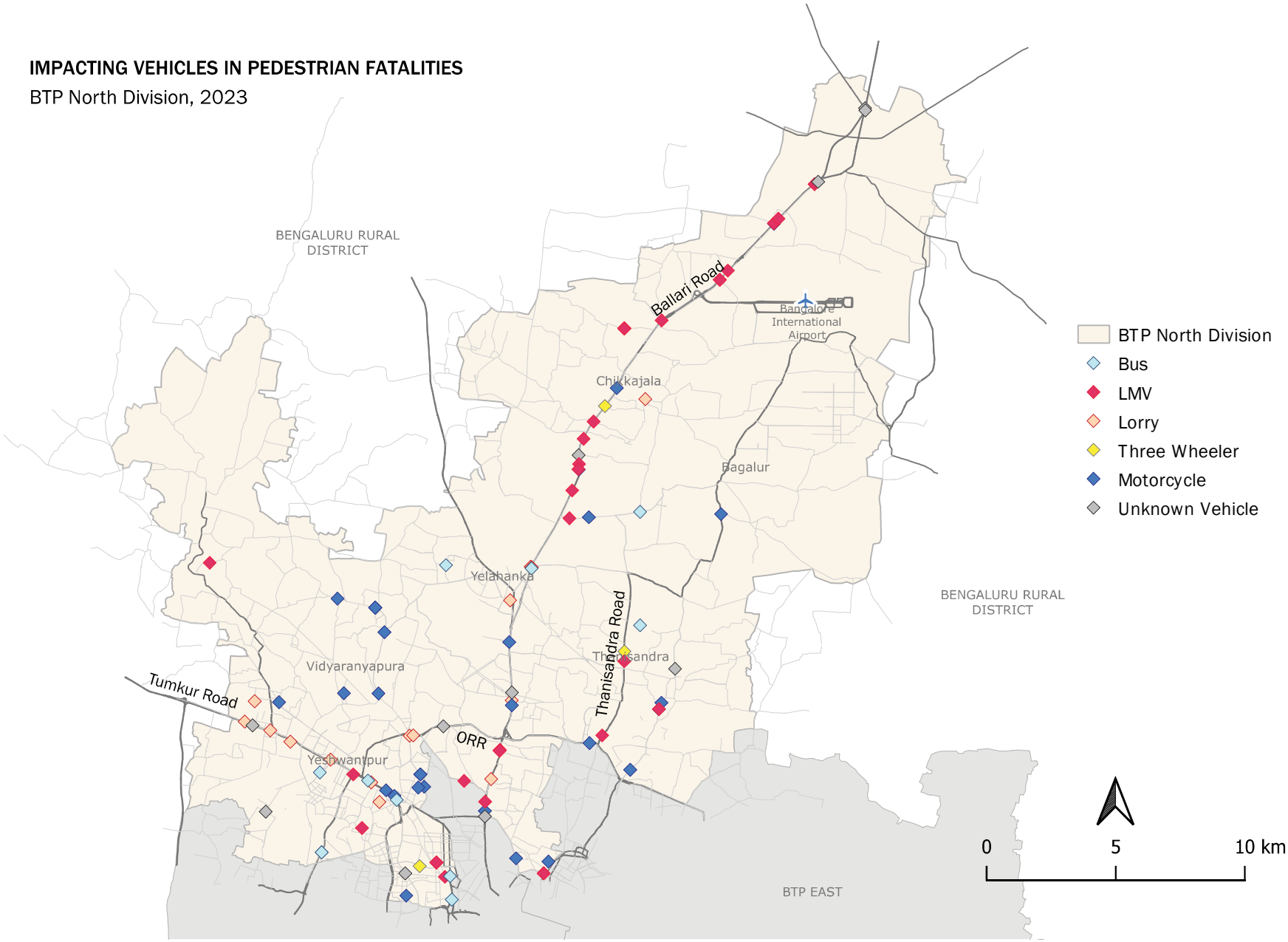


Fig-27: Impacting vehicles in pedestrian fatalities, BTP North

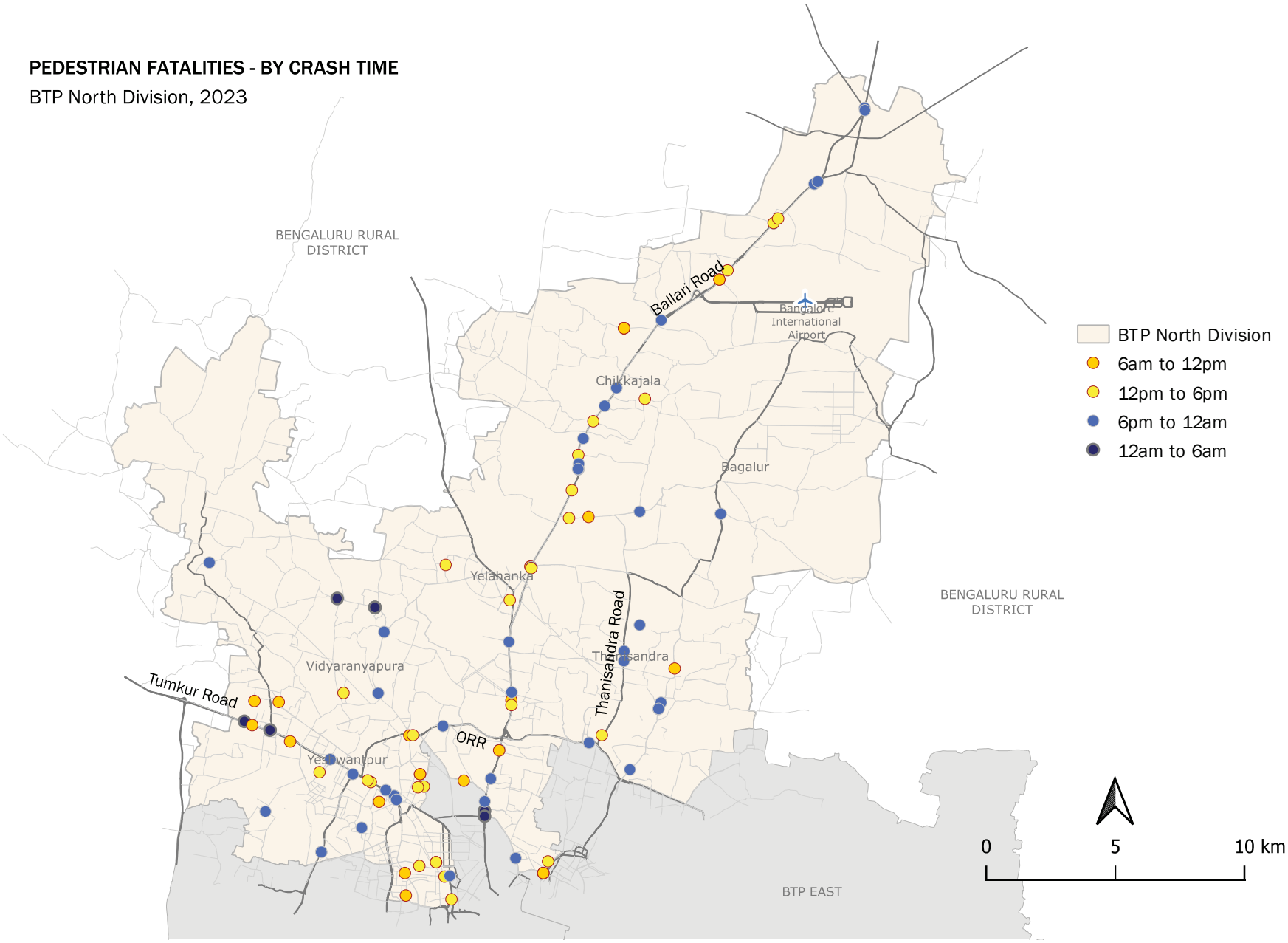


Fig-28: Pedestrian fatalities - by crash time, BTP North

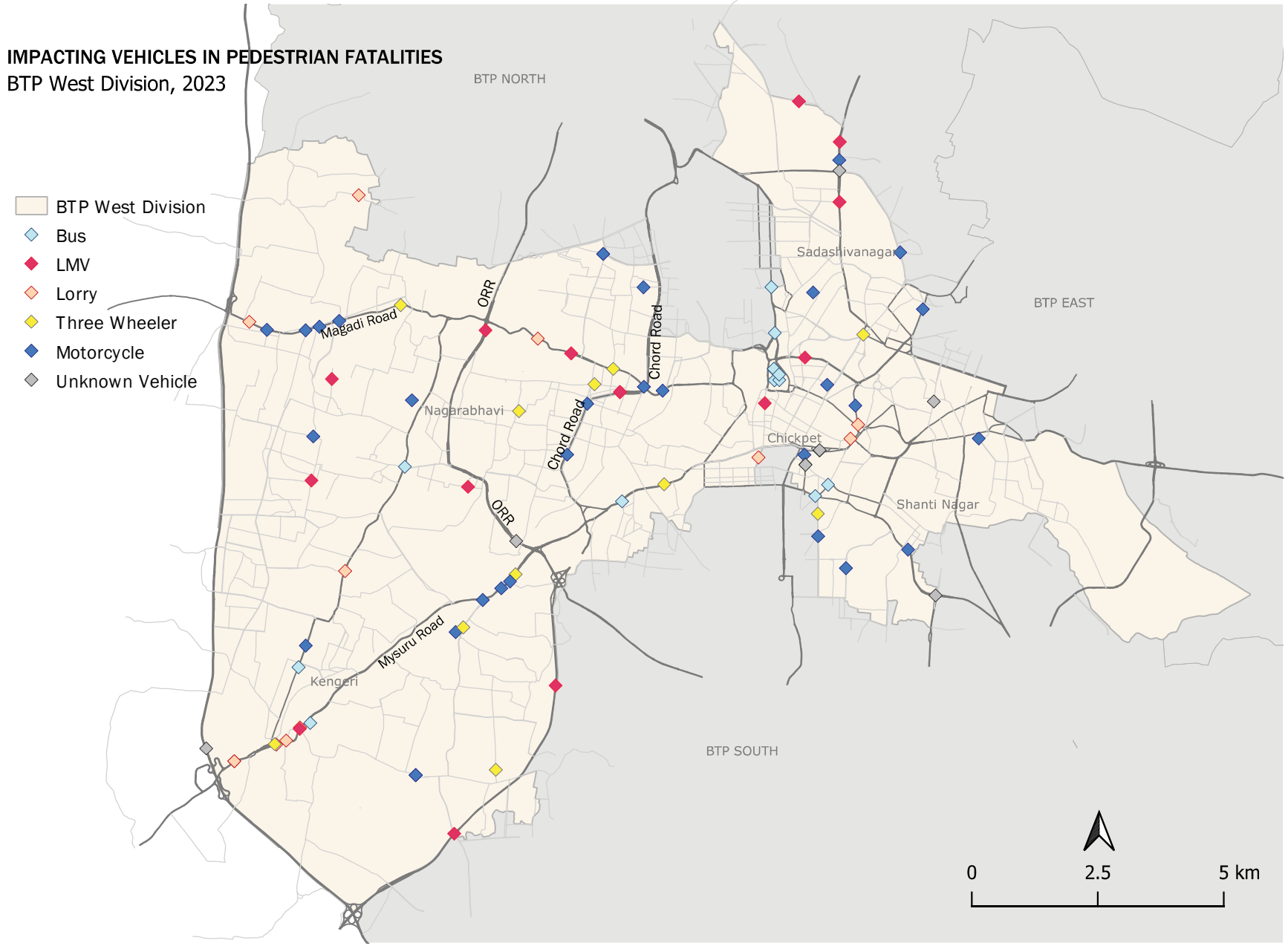


Fig-29: Impacting vehicles in pedestrian fatalities, BTP West

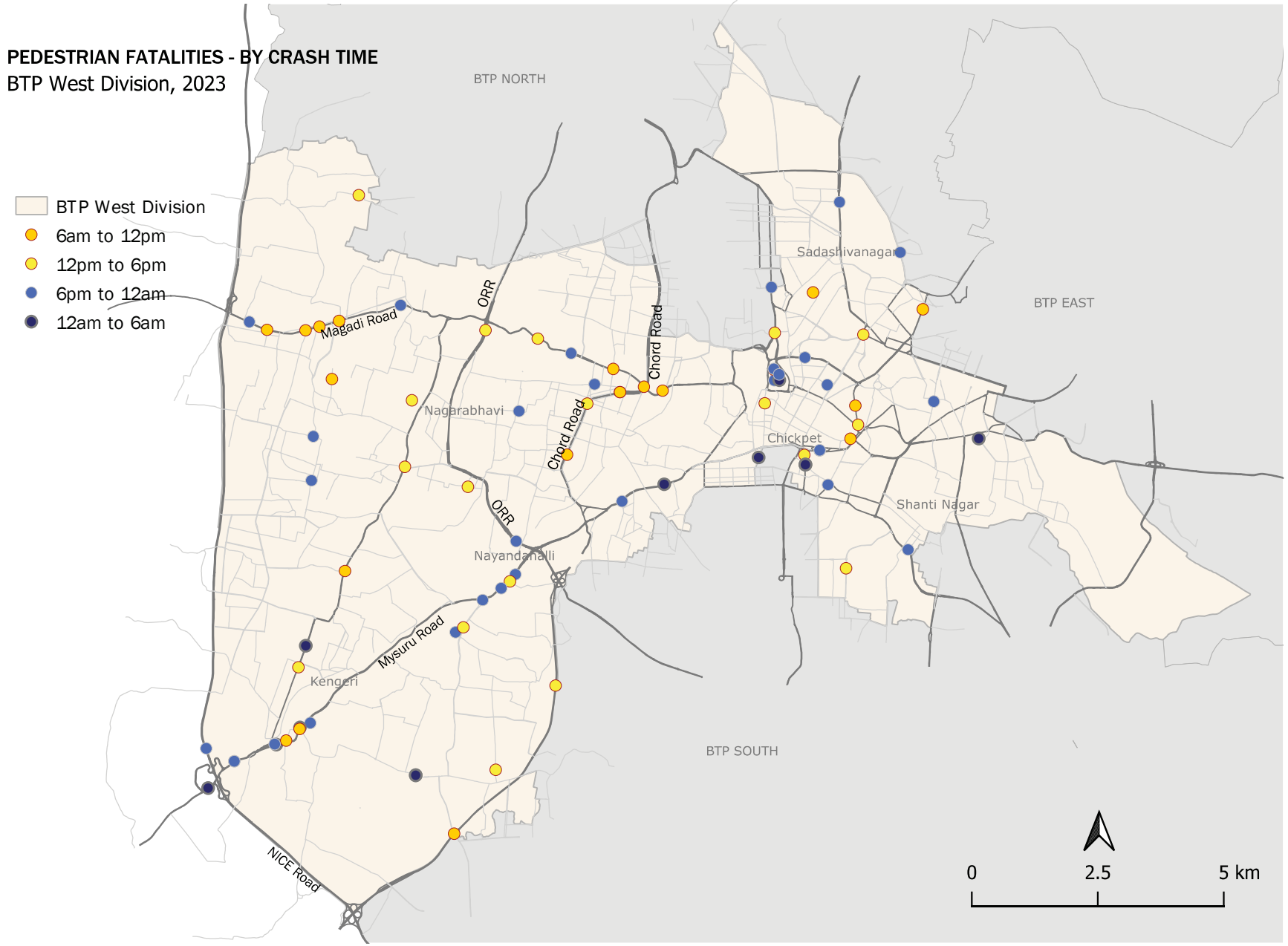


Fig-30: Pedestrian fatalities - by crash time, BTP West

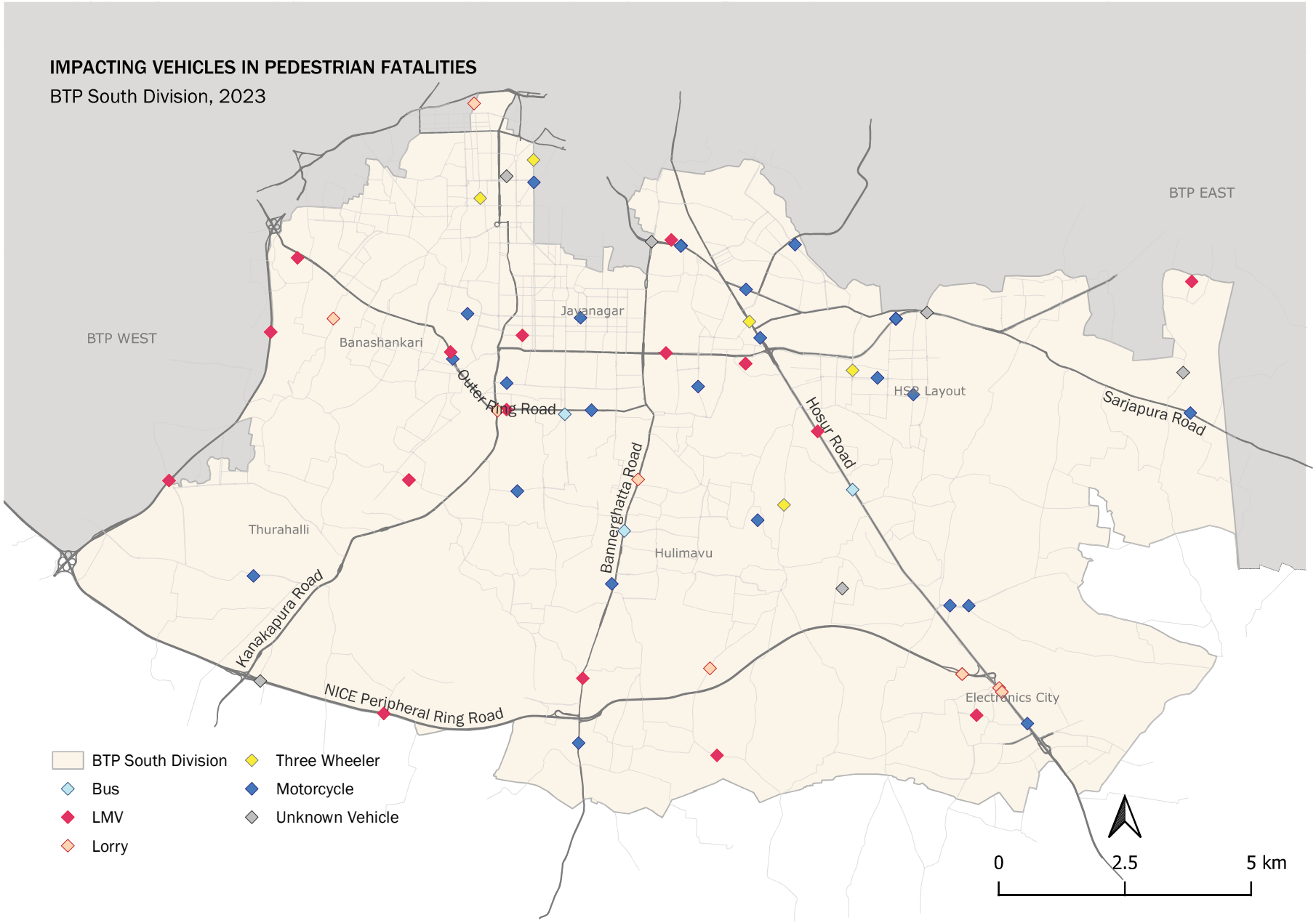


Fig-31: Impacting vehicles in pedestrian fatalities, BTP South

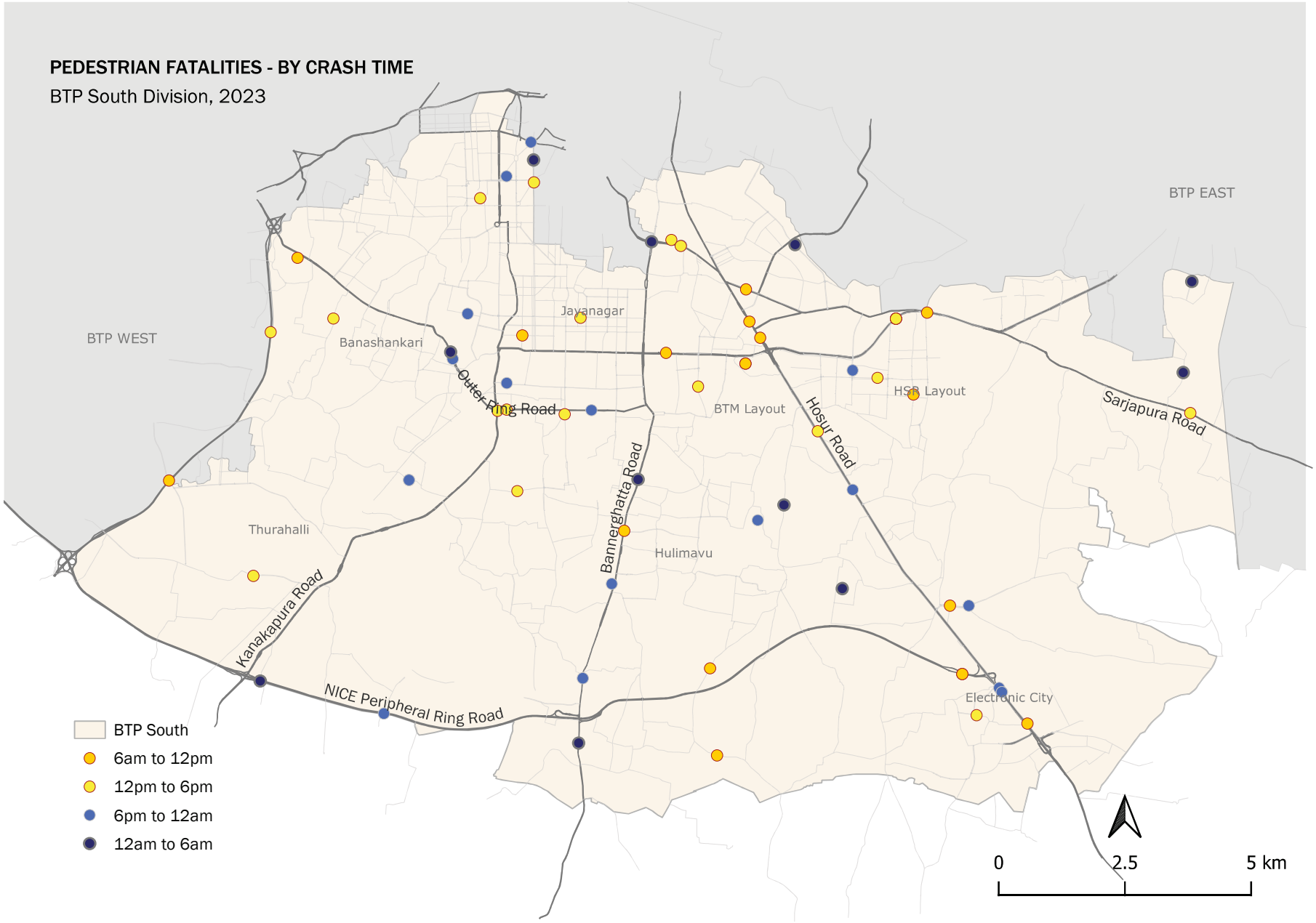


Fig-32: Pedestrian fatalities - by crash time, BTP South

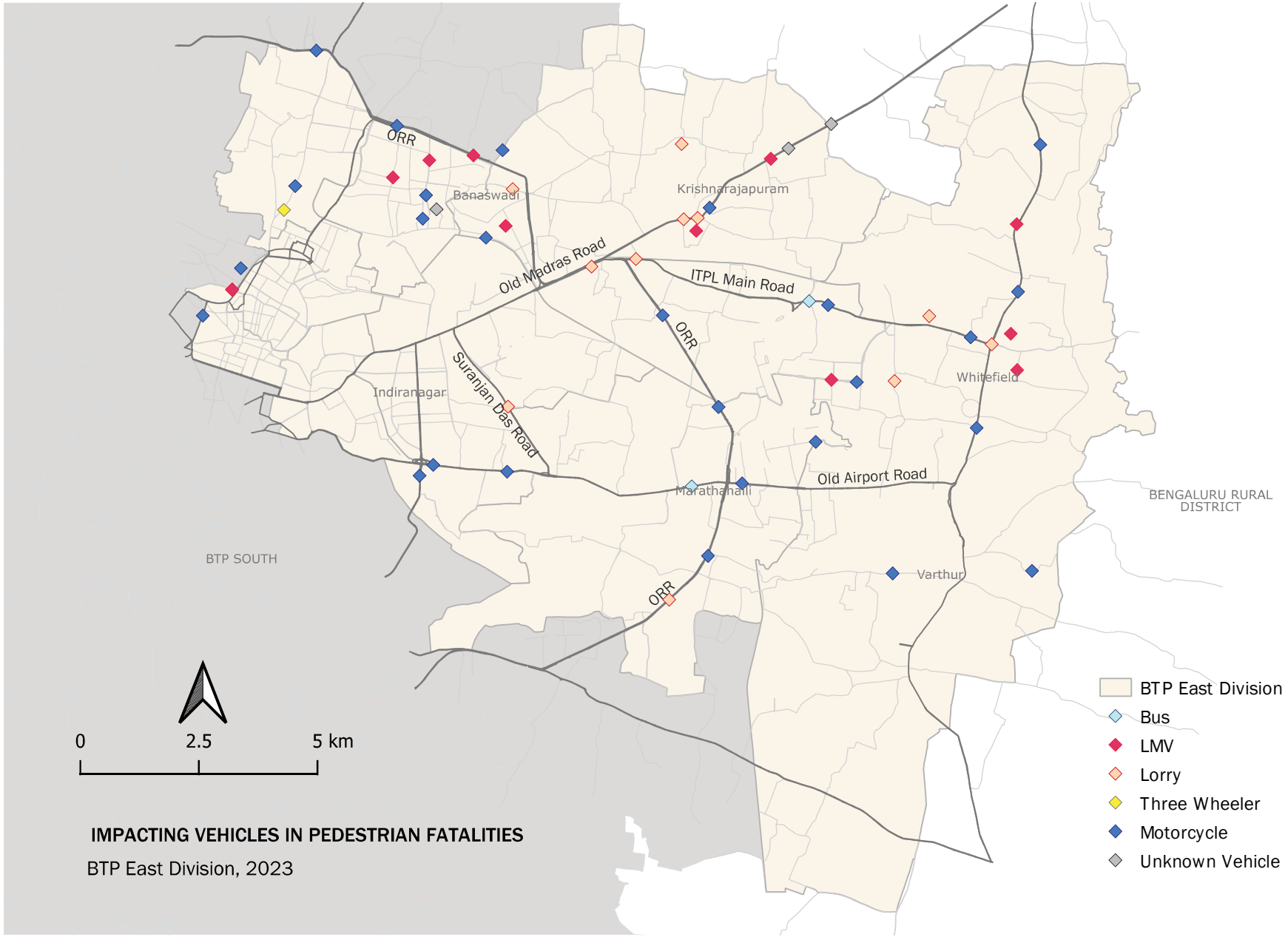


Fig-33: Impacting vehicles in pedestrian fatalities, BTP East

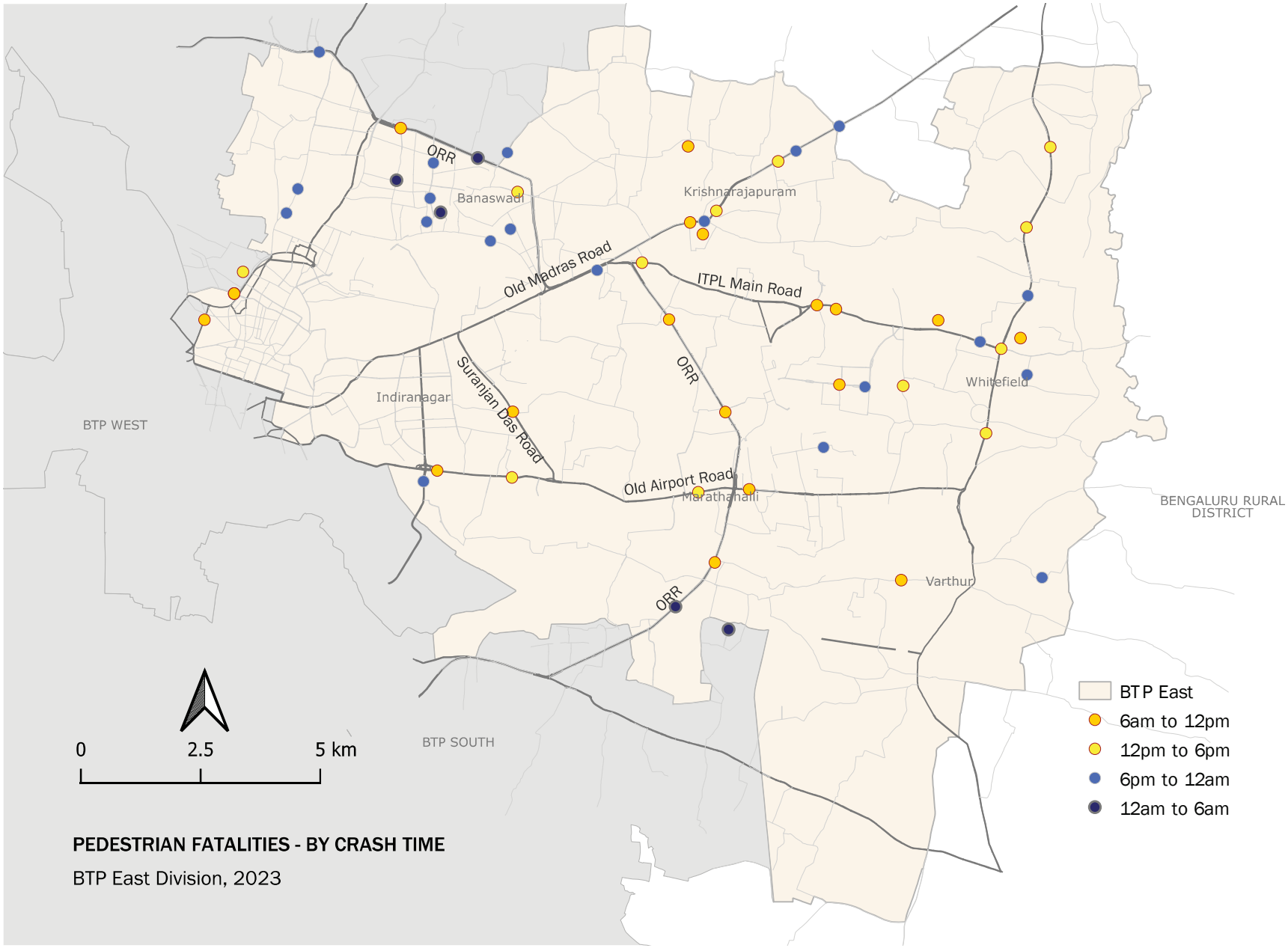


Fig-34: Pedestrian fatalities - by crash time, BTP East

11. Single vehicle crash fatalities

289 fatalities were due to single vehicle crashes in Bengaluru City in 2023. Of these, 167 (57%) were due to vehicles crashing into fixed or stationary objects (Fig-35).

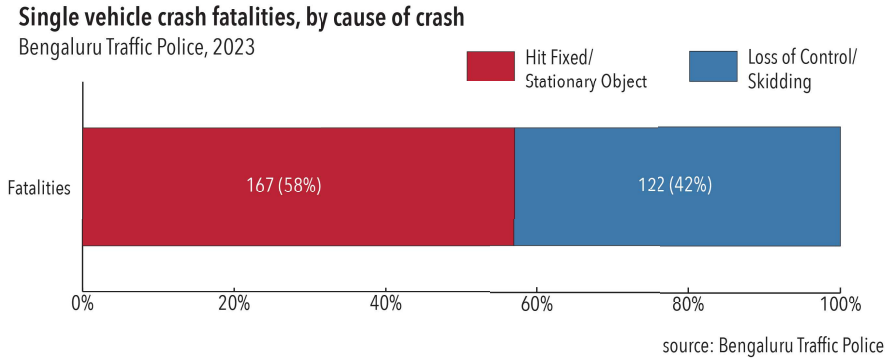


Fig-35: Single vehicle crash fatalities, by cause of crash

85% of single vehicle crash fatalities were among motorcyclists. Of these, 109 (44%) motorcyclists were between 20 and 29 years of age (Fig-36).

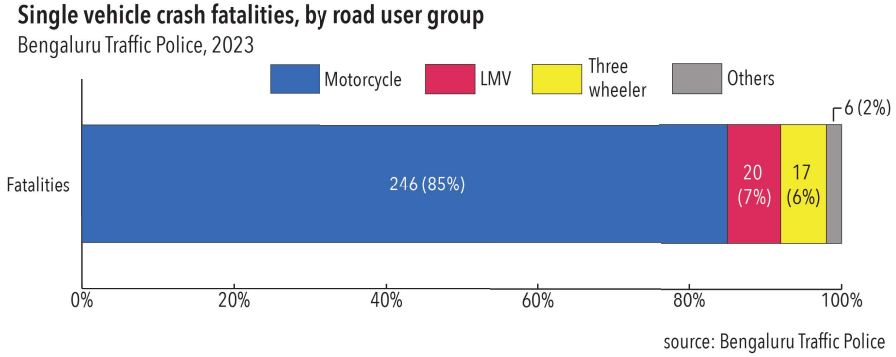


Fig-36: Road user groups involved in single vehicle fatalities

12. Driving under influence of alcohol - crash fatalities

Driving under the influence of alcohol was observed in 23 (2.5%) out of the total 921 fatalities recorded by BTP in 2023. Of these, 17 (74%) fatalities involved motorcyclists aged between 20 and 49 years.

While spread across BTP's jurisdiction, drink driving fatalities were concentrated near Koramangala and the central areas of Bengaluru City.

Note: The above count may not be accurate due to the possibility of underreporting of the influence of alcohol.

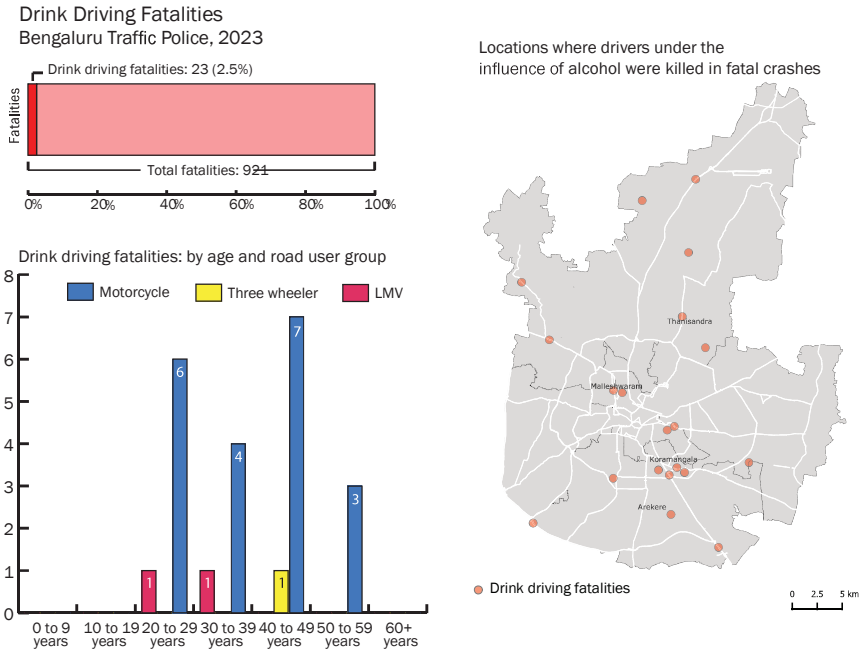


Fig-37: Drink driving fatalities, 2023

13. Overview: location of fatal crashes

This section presents heat maps of fatal crashes in each BTP Division. Fatal crashes were more concentrated along Ballari road in BTP North Division, Magadi Road and Mysuru Road in BTP West Division, Hosur Road and ORR in BTP South Division and Old Madras Road and Whitefield Main Road in BTP East Division.

13.1 BTP North Division

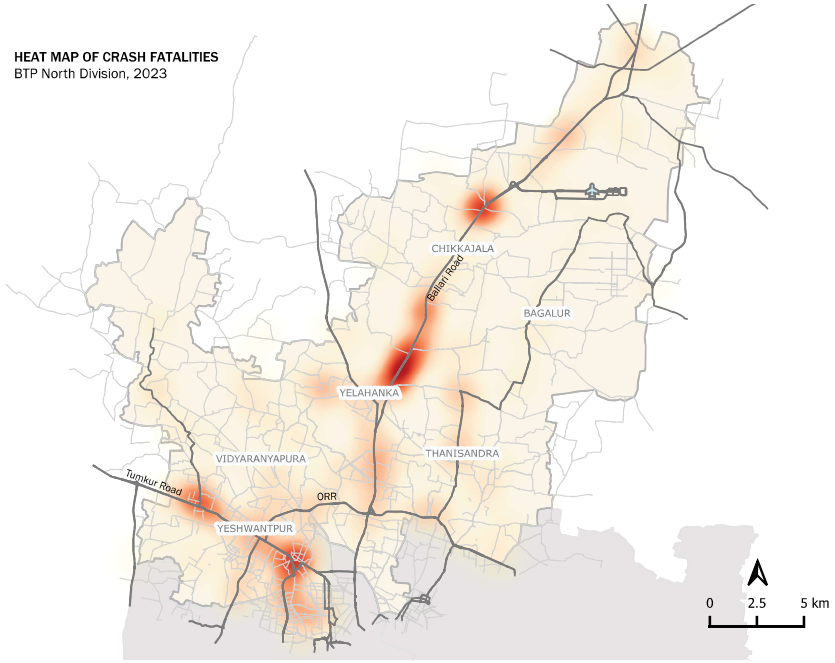


Fig-38: Heat map of fatalities, BTP North

13.2 BTP West Division

Fig-39: Heat map of fatalities, BTP West

13.3 BTP East Division

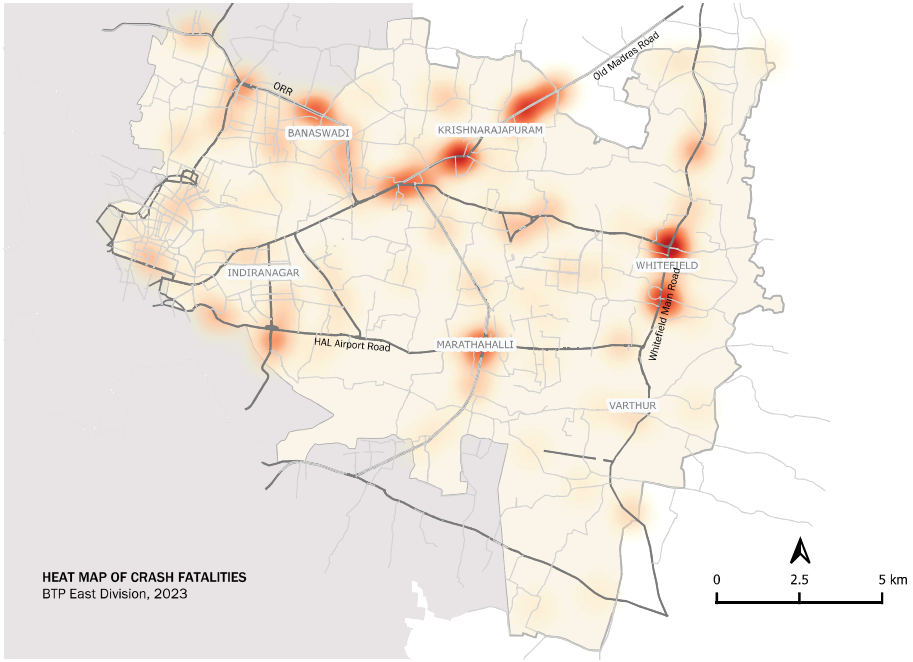


Fig-41: Heat map of fatalities, BTP East

13.4 BTP South Division

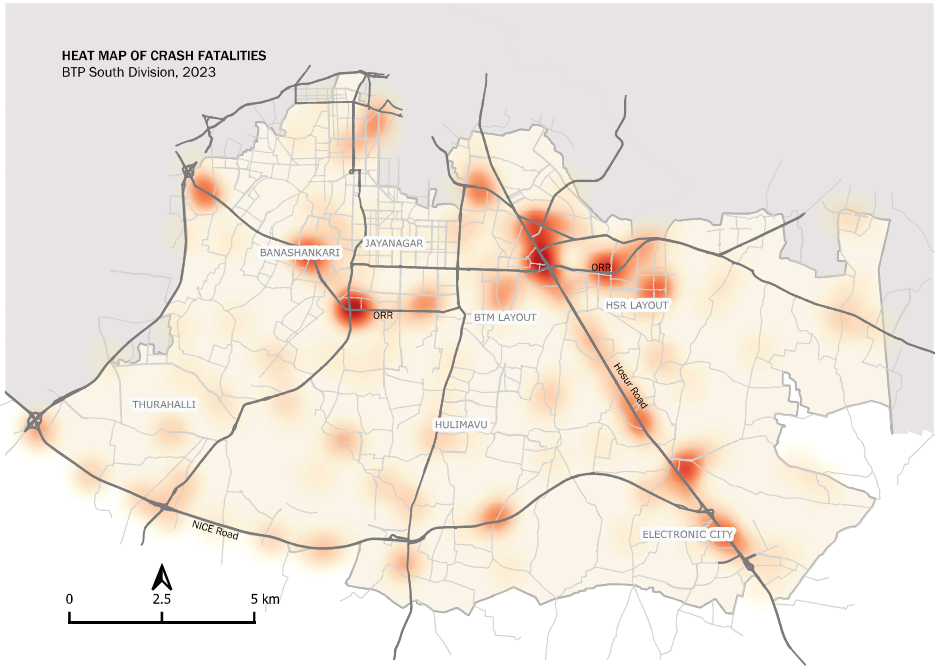


Fig-40: Heat map of fatalities, BTP South

14. High risk locations

14.1 BTP North Division

Table-5: High Risk Locations, BTP North

RANK	BLACKSPOT/HIGH RISK LOCATION	ROAD	FATALITIES (2021-23)
1.	Byatarayanapura Junction	Ballari Road	11
2.	Sadahalli Gate	Ballari Road	10
3.	Yelahanka Air Force Station Bus Stop	Ballari Road	8
4.	Bef Oracle/Opp Nirman Krishna Apartments	Ballari Road	7
5.	Aft Kere Veeranjaneya Swamy Temple /In front of Bharti Nagar bus stop	Ballari Road	7
6.	Jalahalli Cross	Tumkur Road	7
7.	GKVK Gate Junction	Ballari Road	7
8.	Yeshwantpur Metro Station	Tumkur Road	6
9.	Pillar no 110 / In front of Sobha Apartment / Bef Nagasandra Metro	Tumkur Road	6
10.	Kodigehalli Gate Bus Stop / In front of Brigade Magnum	Ballari Road	6
11.	Hebbal Flyover	Ballari Road	6
12.	In front of Sparsh Hospital / In front of Goreguntepalya Bus Stop	Tumkur Road	5
13.	Between Pillar Nos 28 & 29 / After Peenya Industry Metro	Tumkur Road	5
14.	Jn of Hosahalli Main Rd & Ballari Rd / In front of Hunasamaranahalli bus stop	Ballari Road	5
15.	Before Kannamangala Gate Bus Stop/Before Kannamangala FOB	Ballari Road	5

14.2 BTP West Division

Table-6: High Risk Locations, BTP West

RANK	BLACKSPOT / HIGH RISK LOCATION	ROAD	FATALITIES (2021-23)
1.	Summanahalli Junction	Outer Ring Road	11
2.	Jn of 14th Cross rd & Mysore Road / Before Vrushabavati Bridge	Mysore Road	6
3.	SJP Road, in front of SBM Toilet	SJP Road	6
4.	Hudson Circle	Nrupathunga Road	5
5.	Dairy Circle	Bannerghatta Road	5
6.	Nayandahalli Junction	Mysore Road	5

14.3 BTP South Division

Table-7: High Risk Locations, BTP South

RANK	BLACKSPOT/HIGH RISK LOCATION	ROAD	FATALITIES (2021-23)
1.	Veerasandra Bus Stop	Hosur Road	14
2.	Jn of BTM Roopena Agrahara Rd & Hosur Road Vishal Mega Mart	Hosur Road	8
3.	PES College Bus Stop	Outer Ring Road	8
4.	Jn of Singasandra Lake Road & Hosur Road / near Pillar Number 100	Hosur Road	7
5.	Sarakki Signal	Kanakapura Road	7
6.	Jn of Chikkathogur Main Road & Hosur Road / Pillar Number 163 / In front of Trelleborg India Pvt Ltd	Hosur Road	6
7.	Jn of SKS Compound Rd & Hosur Rd / Pillar Number 80 / Opp Masjid Al-Qasim	Hosur Road	6
8.	Agara Junction	Outer Ring Road	6
9.	In front of Ashoka Pillar Park/Bef Devegowda Petrol Bunk	Outer Ring Road	6
10.	Garvebhavipalya Junction	Hosur Road	6
11.	In front of NTTF	Hosur Road	6
12.	Vajramuneshwara Gate Bus Stop	Kanakapura Road	5
13.	Singasandra	Hosur Road	5

14.4 BTP East Division

Table-8: High Risk Locations, BTP East

RANK	BLACKSPOT/HIGH RISK LOCATION	ROAD	FATALITIES (2021-23)
1.	Jn of 1st Main Road & ITPL Main Road / Bef Hotel Royal Blooms	ITPL Main Road	7
2.	Before KR Puram bridge/In front of Hydraulic Machine Tools	Old Madras Road	7
3.	Jn of Diesel Loco Shed Rd & Old Madras Rd / In front of KR Puram Govt Hospital Bus Stop	Old Madras Road	7
4.	Bhattarahalli - Basavanapura Road Junction	Old Madras Road	7
5.	Hennur Junction	Outer Ring Road	7
6.	Between Garudacharpalya Metro and Vijayalakshmi Theatre	ITPL Main Road	6
7.	Between Sathya Sai Hospital & Pashmina Waterfront Apartment	Old Madras Road	6
8.	Bef Varthur Police Station Junction/Jn of 26th cross rd & Varthur-Sarjapur rd	Varthur-Sarjapur Road	5
9.	Marathahalli Bridge	Old Madras Road	5

Fig-42: High risk locations, BTP North

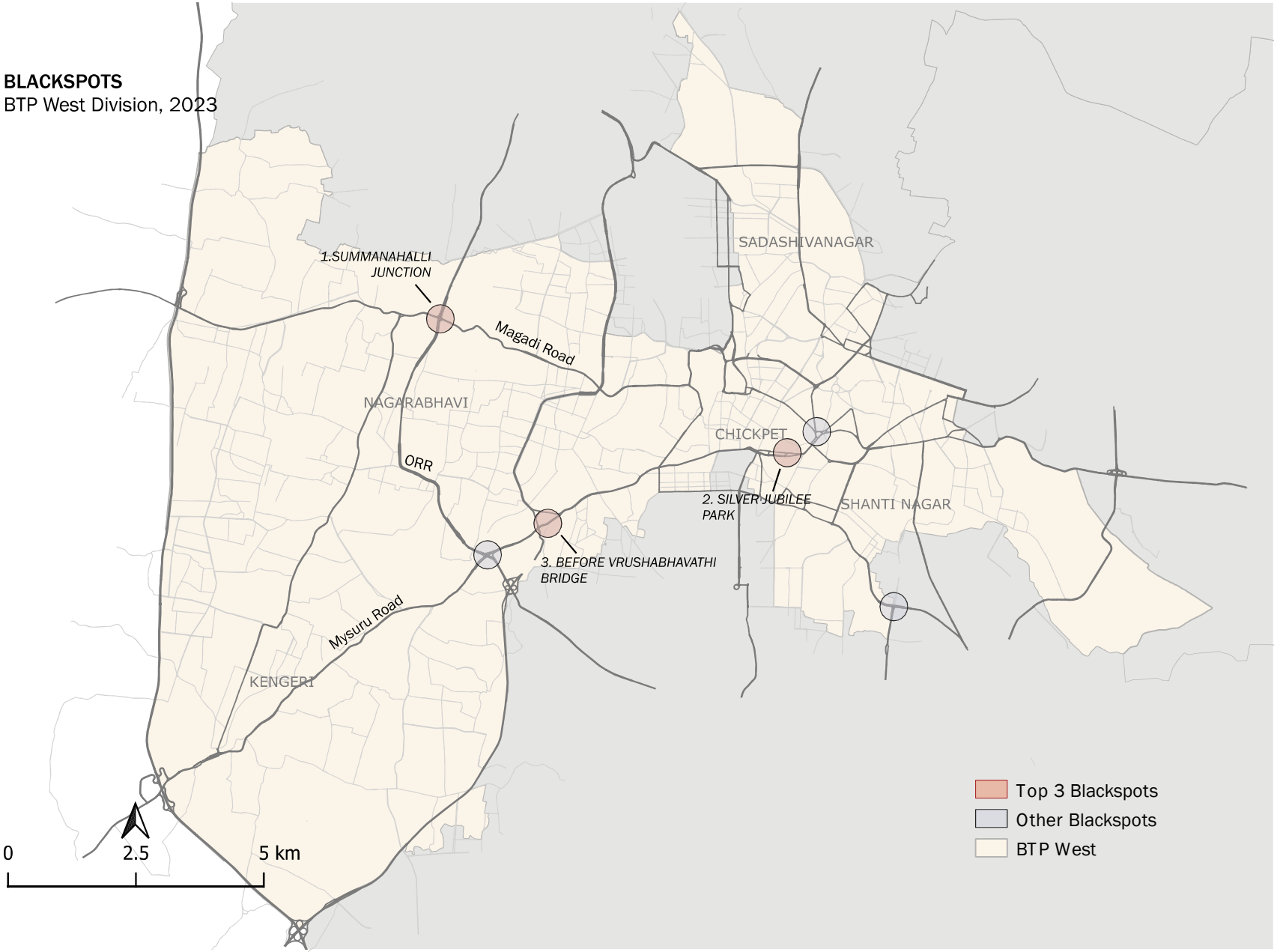


Fig-43: High risk locations, BTP West

Fig-44: High risk locations, BTP South

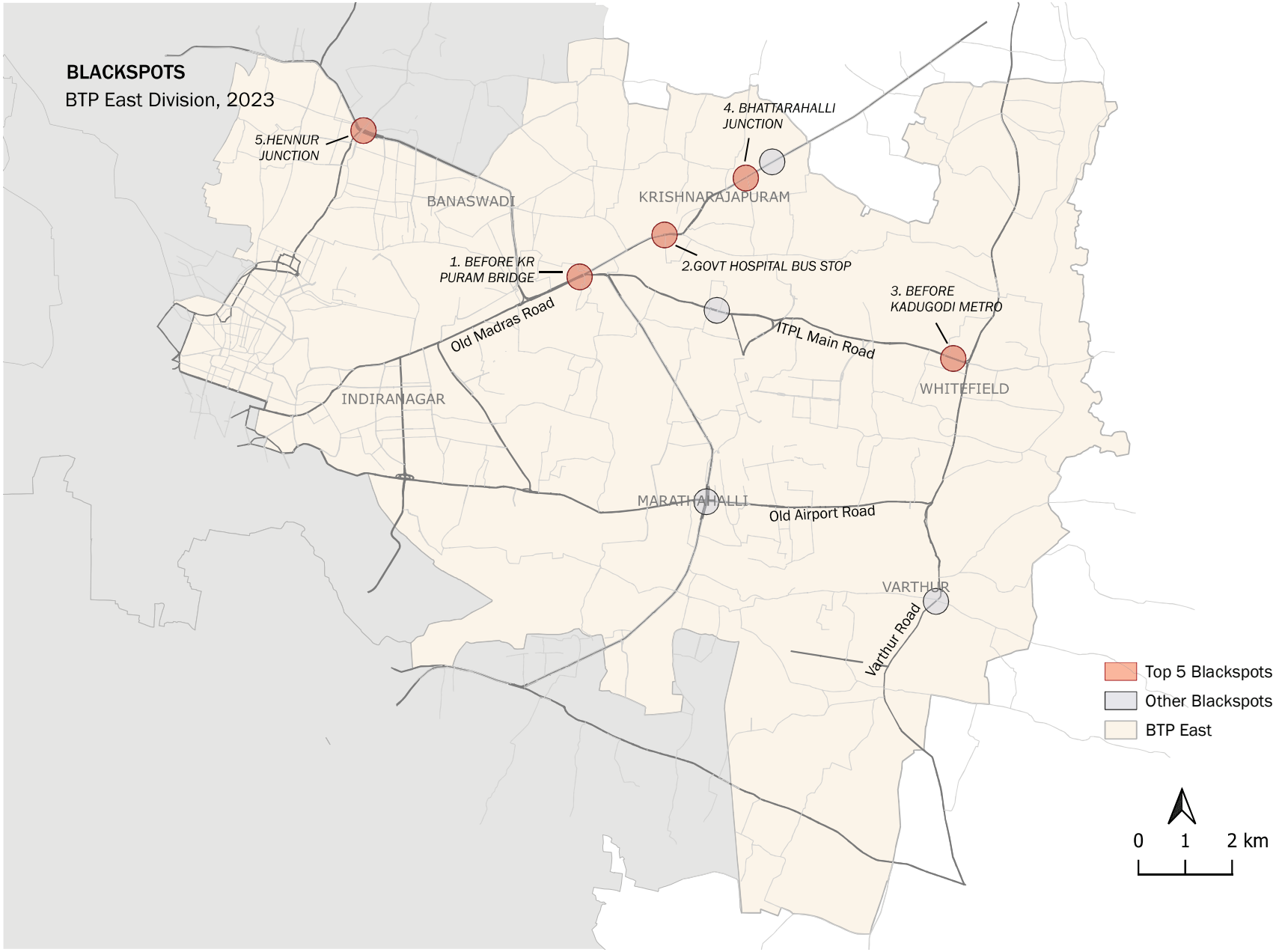


Fig-45: High risk locations, BTP East

15. High Risk Corridors

15.1 BTP North Division

Table-9: High Risk Corridors, BTP North

Rank	From	To	Road	Dist. (km)	Fatalities	Fatalities/km
1.	Meenakunte Bus Stop	Devanahalli Toll	Ballari Road	1.3	12	9
2.	Kogilu Cross	Bagalur Cross	Ballari Road	2.4	20	8
3.	Yelahanka Airforce Station Bus Stop	Hunasamaranahalli Bus Stop	Ballari Road	1.6	11	7
4.	Sandal Soap Factory	Gorguntepalya Metro	Tumkur Road	2.5	13	5
5.	Esteem Mall	Jakkur Aerodrome	Ballari Road	3.6	12	3
6.	Book Factory Bus Stop	Koli Farm Junction	Thanisandra Road	1.8	6	3
7.	Manjunath Nagara Metro	Gorguntepalya Junction	Tumkur Road	5.3	15	3

15.2 BTP West Division

Table-10: High Risk Corridors, BTP West

Rank	From	To	Road	Dist. (km)	Fatalities	Fatalities/km
1.	Raja Rajeshwari Nagar Arch	Nayandahalli Private Bus Stand	Mysore Road	1.1	8	7
2.	Kengeri Circle	Kengeri Satellite Town Bridge Junction	Mysore Road	0.7	5	7
3.	KR Circle	Hudson Circle	Nrupathunga Road	1.1	6	5
4.	Herohalli Cross	Int of Magadi Road & Nice Road	Magadi Road	2.3	12	5
5.	5th Stone Nice Road	Ullal Upanagar Passing Bridge	NICE Road	1	5	5
6.	Madhu Super Specialty Hospital	Benaka Hospital	Magadi Road	1.8	7	4
7.	Manjunath Nagara Metro	Convention Hall	100 feet road	2.9	9	3

15.3 BTP South Division

Table-11: High Risk Corridors, BTP South

Rank	From	To	Road	Dist. (km)	Fatalities	Fatalities/km
1.	St John's Hospital Junction (before Skywalk)	Silk Board Junction	Hosur Road	1.6	7	4
2.	Int of 5th Main Road & Outer Ring Road	Agara Bus Stop	Outer Ring Road	2.4	8	3
3.	Silk Board Junction	Veerasandra Bus Stop	Hosur Road	10.42	26	2
4.	Devegowda Petrol Bunk	Veerasandra Bus Stop	Outer Ring Road	4.55	11	2
5.	Int of Kanakapura Road & Nice Road	Int of Bannerghatta Road & Nice Road	NICE Road	6.75	7	1

15.4 BTP East Division

Table-12: High Risk Corridors, BTP East

Rank	From	To	Road	Dist. (km)	Fatalities	
1.	Bhattarahalli Signal	Medahalli Bus Stop	Old Madras Road	1.6	10	6
2.	Svastha Hospital	ITPL Main Road JCT.	Whitefield Road.	2.02	9	4
3.	Kadubisanahalli Bus Stop	Marathahalli Junction	Outer Ring Road	1.7	6	4
4.	Benniganahalli Lake Garden	KR Puram Skywalk	Old Madras Road	3.6	11	3
5.	Horamavu Junction	Hennur Junction	Outer Ring Road	2.8	8	3

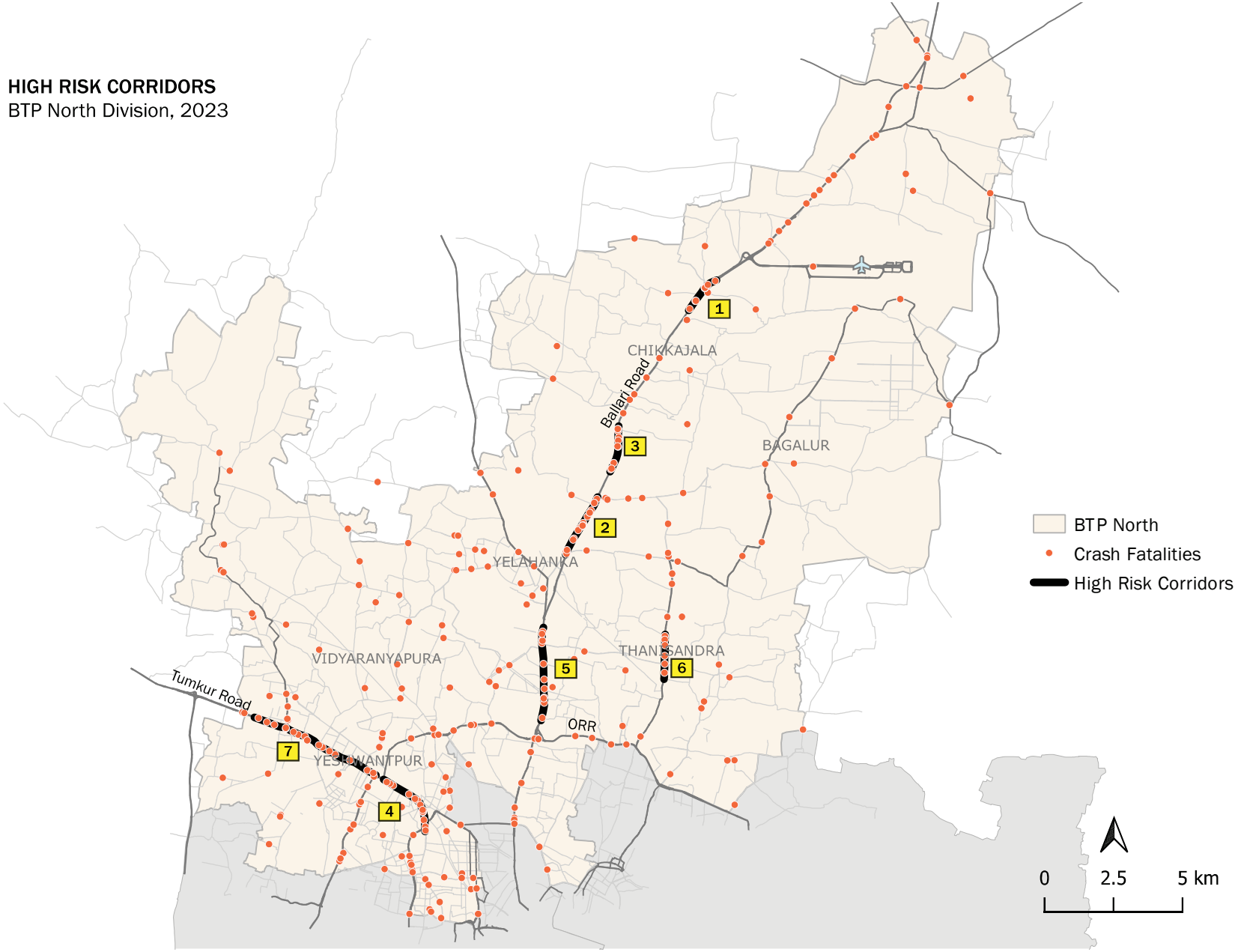


Fig-46: High risk corridors, BTP North

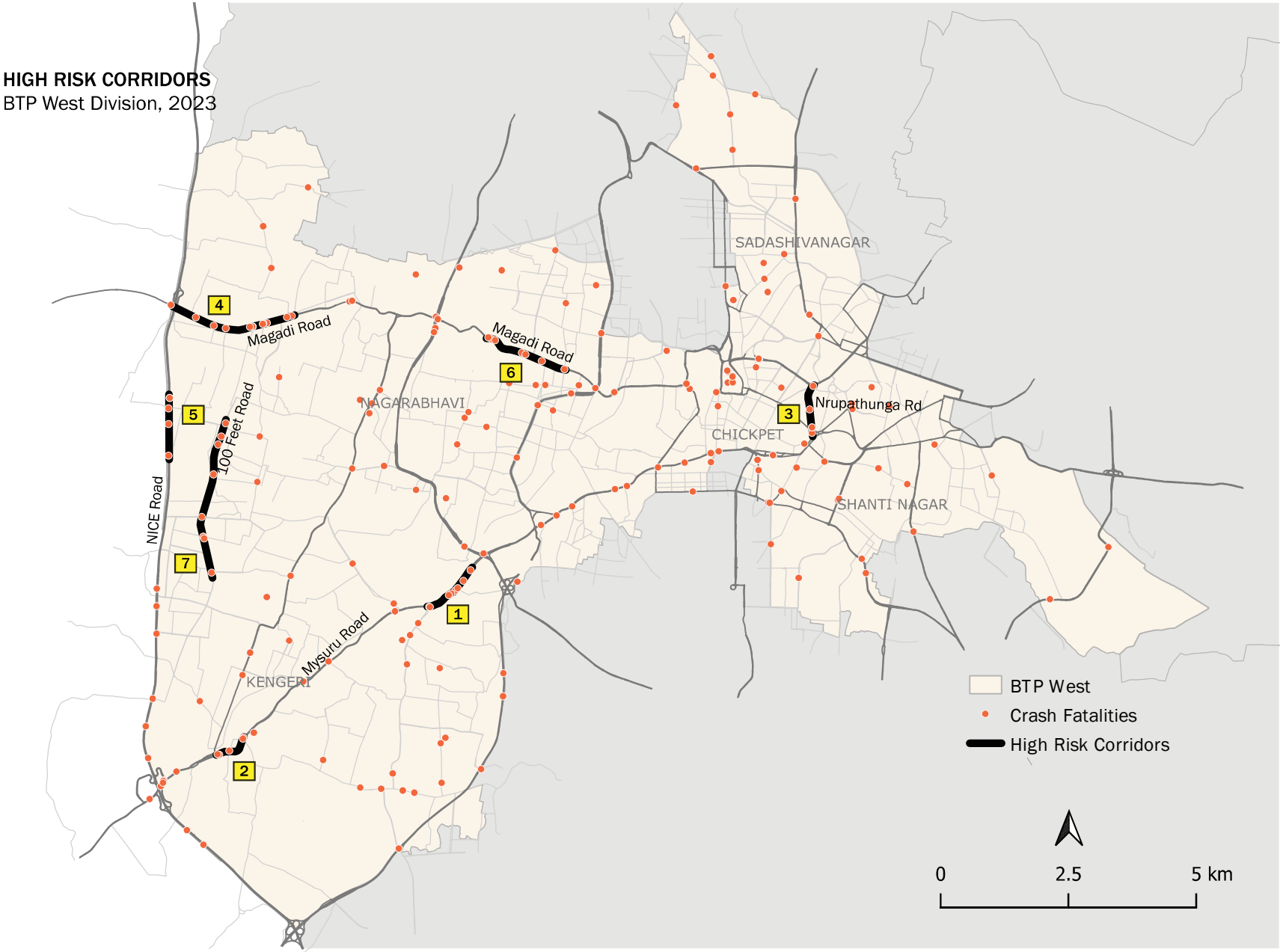


Fig-47: High risk corridors, BTP West

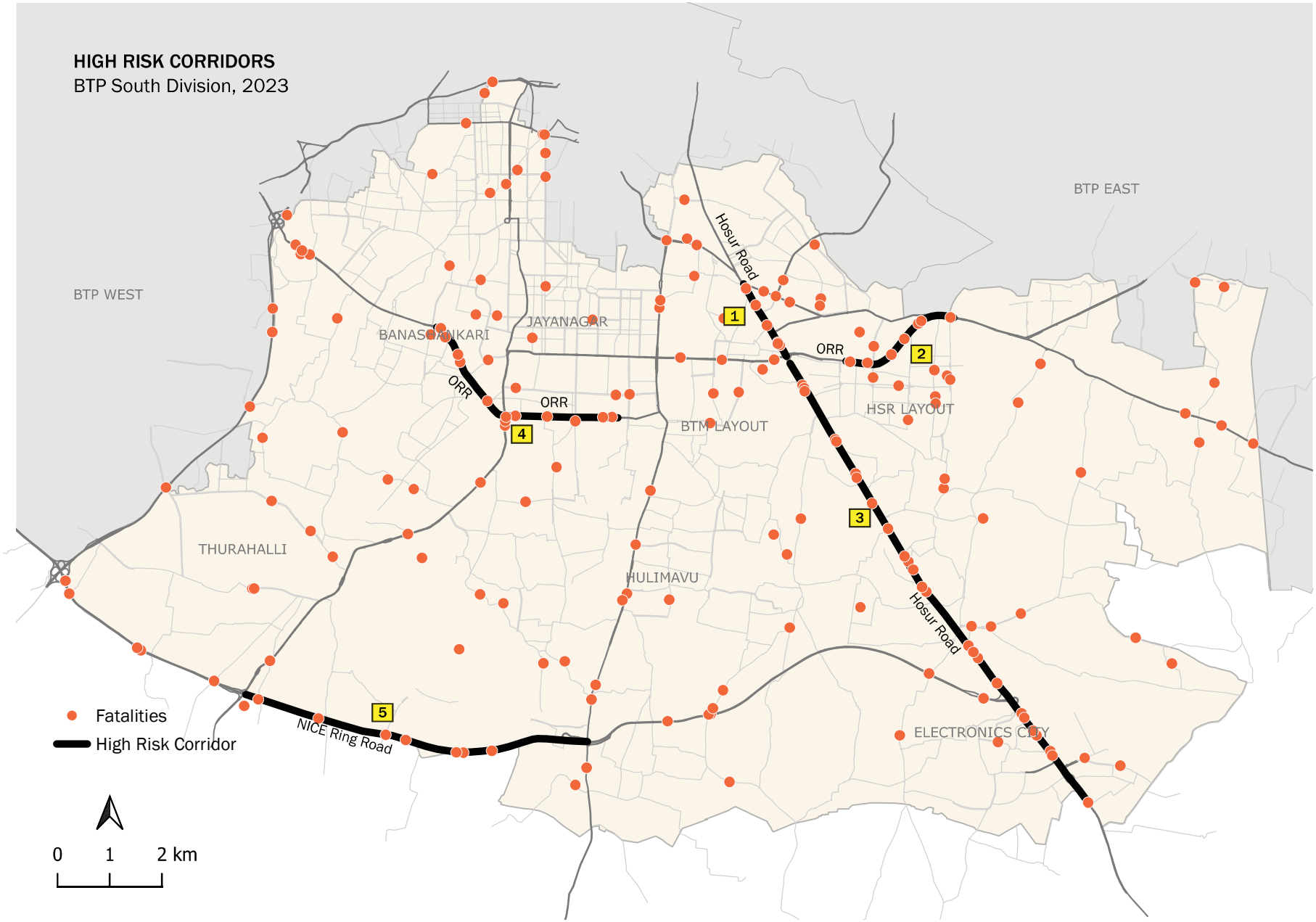


Fig-48: High risk corridors, BTP South

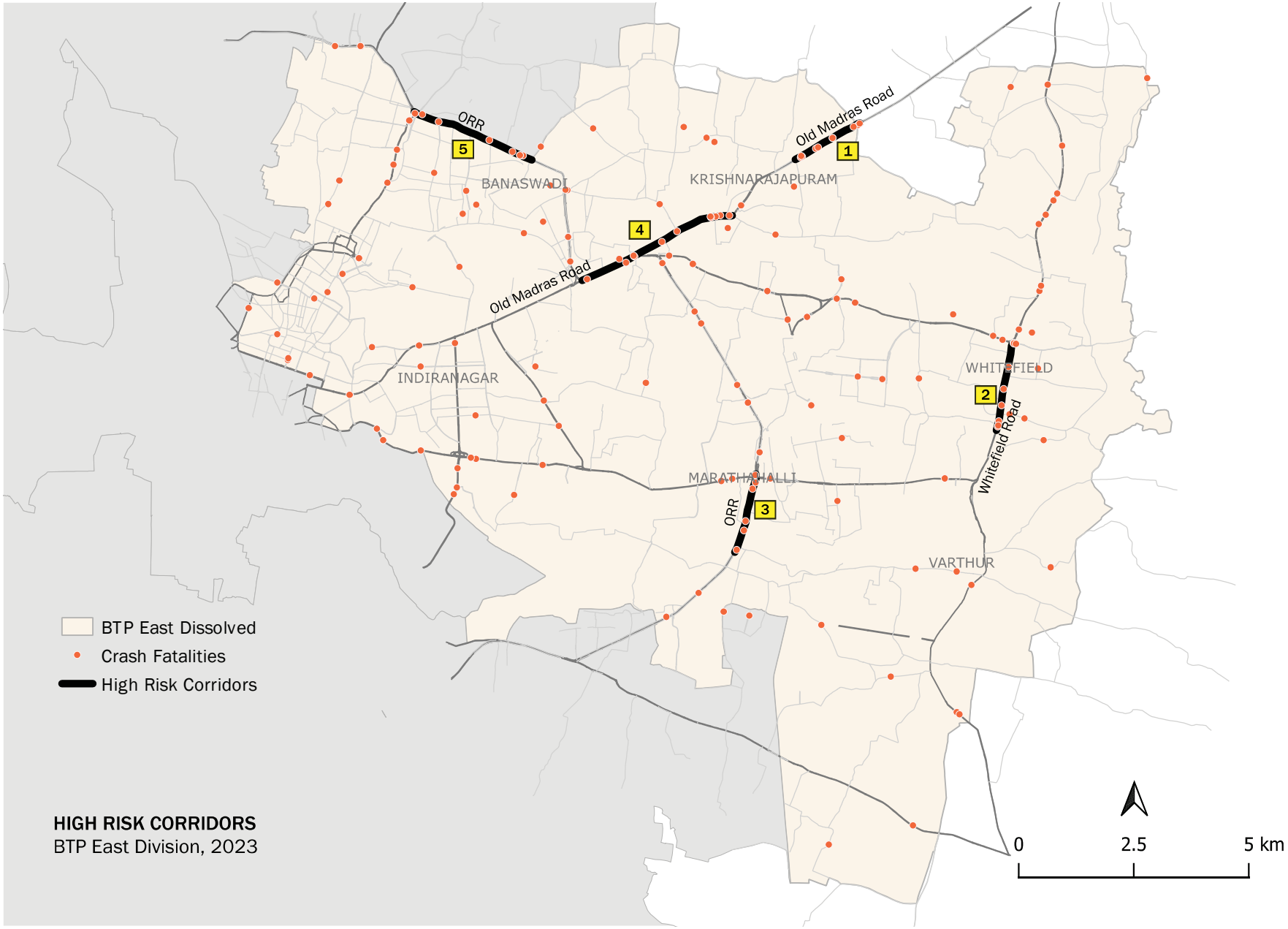


Fig-49: High risk corridors, BTP East

16. Findings from the observation study on road safety risk factors

Introduction: A roadside observations study was conducted by the Johns Hopkins International Injury Research Unit (JH-IIRU) of the Johns Hopkins University (JHU) under the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) project *(through a partnership with National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore)*

Study type: Observational surveys on the main road safety risk factors: speed, helmet use, and seatbelt and child restraint use.

Study duration: November 2021 and October 2022

Total observation sites: 15 locations - helmet, seatbelt and child restraint use; 25 locations -speed observations Total observations: 330,922 observations in Bengaluru Metropolitan Region (*speed- 172,164 observations; helmet use- 121,098 observations; seatbelt and child restraint use- 96,198 observations)*

Observation time: 7:30 am - 7:00 pm on both weekend days and weekdays for all aforementioned risk factors; one additional round of observation for speeding from 9:30 pm - 12:00 am

Findings:

1. Speeding:

- Speed limits in Bengaluru Metropolitan Region range from 40-80 km/h depending on the type of road and vehicle class.
- Overall, 31% of all observed vehicles exceeded the posted speed limit with an average speed of 68 km/h.
- On average, 92% of vehicles on collector/local roads were driving above the globally recommended safe speed cut-off (≤ 30 km/h).
- 39% of light vehicles were speeding above the posted speed limits.
- Expressways had the highest speeding prevalence as well as highest mean speed (37%, 62 km/h) than collector/local roads (27%, 45 km/h) and arterial roads (25%, 48 km/h).
- Night times (9:30pm-12:00am) had the highest speeding prevalence (36%) and highest median speed (55 km/h)

2. Helmet use:

- Correct helmet use among all motorcycle occupants was low at 34% (riders and passengers- 38% and 16%, respectively).
- Correct helmet use was low for both male and female occupant (35% and 29%, respectively).
- Afternoons (2:00-4:00 pm) had lowest correct helmet use (27%)

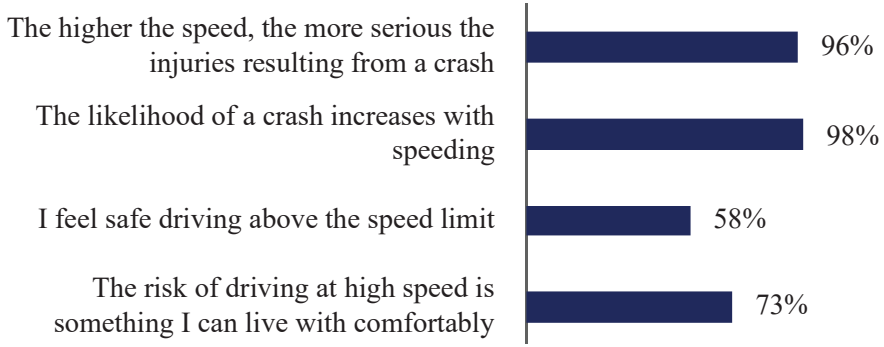
3. Seatbelt and Child restraint use:

- Overall seat-belt use among all occupants was 46% (rear-seat passengers- 1%; drivers- 66%).
- Age-appropriate child restraint use for children under 12 years was very low (2%).
- Compliance with seatbelt use was lowest among drivers of heavy vehicles (4%).

17. Findings from social behavioral research: Drivers' knowledge, attitudes, behaviors, social norms, and risk perceptions related to speeding in

Background: In 2024, Vital Strategies, with the support of the Karnataka government, conducted a study that assessed drivers' risk perception, knowledge, attitudes, self-reported behaviors, and social norms around road safety.
Study duration: January to February 2024
Study type: face-to-face interviews with 1062 randomly selected two—and four-wheeler drivers in Bangaluru.

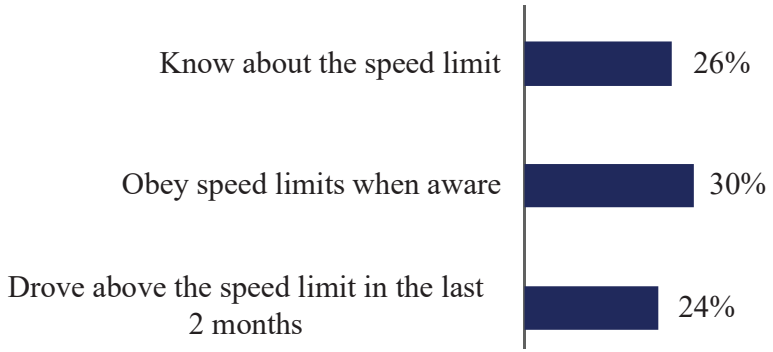
Speed Risk Perceptions Among 2- and 4- Wheel Drivers in Bengaluru



Findings:
1. Risk Perception & Awareness: While over 96% recognized that speeding increases crash risk and injury severity, 73% felt comfortable exceeding speed limits, and 58% felt safe doing so.

2. Self-reported behaviours:
2.1 Speeding: Only 21% knew the city's speed limits, and among them, just 26% reported following them. Additionally, 25% admitted to frequently speeding in the two months prior to the study, with four--wheel drivers (27%) reporting this behavior more often than four-wheel drivers (22%).

Self-reported Speeding Behaviours Among 2- and 4- Wheel Drivers



2.2 Safety measures:
When asked, 'What measures do you take to stay safe on the road?', only 25% of respondents mentioned that they always wear a seat belt, 77% of motorcyclists mentioned wearing a helmet and 55% mentioned respecting speed limits.

3. Social norms:
While 96% of respondents reported that people important to them believed following speed limits was important, 59% stated that speeding was generally accepted in the city.
3.1. Perception of the extent of enforcement and support for enforcement measures:
When asked about enforcement, fewer than half (41%) believed that police were likely to stop and fine them for exceeding speed limits in the city. Interestingly, 81% of respondents reported feeling safer on the roads when enforcement measures—such as police presence or speed cameras—were in place. Notably, 99% stated that they had adjusted their driving behavior since the introduction of speed cameras. Finally, only 7% believed that the speed limit should be reduced in residential areas of the city.

18. Way Forward

1. **Improve pedestrian and motorcycle safety**: As 59% of fatalities were among motorcyclists and 31% were among pedestrians, efforts should focus on better infrastructure for pedestrians and more safety features for motorcyclists, including designated lanes, traffic calming measures, and increased helmet usage.

2. **Focus on high-risk locations and corridors**: Focus safety interventions on high-risk locations (e.g., Byatarayanapura Junction, Yelahanka Air Force Station) and corridors (e.g., Meenakunte Bus Stop, Kengeri Circle) to reduce crashes in these hotspots through better traffic management, road design, and signage.

3. **Increased focus on hit-and-run crashes**: With 30% of fatalities being hit-and-run cases, better mechanisms for identifying offenders are necessary, particularly in high-risk areas like North Division.

4. **Enhance speed enforcement**: Given that 31% of vehicles exceed speed limits, particularly on expressways (37%), increasing enforcement through speed cameras and police presence can reduce speeding. This is critical as speeding is a major contributor to fatalities and injuries.

5. **Promote helmet and seatbelt use**: The alarmingly low helmet use among motorcyclists (34%) and seatbelt usage among all occupants (46%) indicates the need for more awareness campaigns, stricter enforcement, and incentives to improve safety gear adherence, particularly for motorcyclists.

6. **Targeted campaigns for young males**: With over 90% of fatalities occurring in the working-age group (20-60 years), and 28% among those aged 20-29, road safety campaigns should specifically target young male drivers and riders to reduce high-risk behaviors.

7. **Improve knowledge and attitudes toward speeding**: With 73% of drivers feeling comfortable exceeding speed limits despite knowing the risks, further awareness and targeted enforcement, coupled with stronger penalties for violations, can help shift attitudes and behaviors surrounding speeding.

8. **Ensure timely payment of challans**: To deter speeding and other traffic violations, it is essential to implement measures that ensure challans (fines) are paid. Examples of these are improved data sharing, license suspension, legal notices, among others.