DELHI ROAD CRASH REPORT 2021

FOREWORD

Through the Delhi Road Crash Report - 2021, Delhi Traffic Police continues with the tradition to analyze road crashes and publish the findings to implement road safety interventions in a bid to reduce road crashes in Delhi. These efforts have shown a positive outcome over the last decade and we have been successful in reducing the number of road crash deaths by 34 percent. I commend the hard work of the traffic police into adopting an evidence-based approach and embracing the global standard that has helped in reducing fatal crashes in Delhi.

The stark reduction in the crashes are, by large, a result of enhanced penalties for traffic violations as well as electronic enforcement.

I appreciate the efforts of the women and men in the Traffic Management Division who continue to enforce the road regulations to further road safety in Delhi. We know from multiple studies that road crashes can be prevented by using a multi-pronged approach based on Education, Engineering, Enforcement and Emergency care.

The identification of 10 blackspots on Delhi roads has helped Delhi Traffic Police to focus and plan road safety interventions on these critical stretches. We continue to review these spots systematically and periodically. The data and analysis on road crashes in this report will help policy makers, researchers, engineers, academicians and other civil society organizations, working in the areas of road safety, in creating awareness for reduction of crashes on the roads of Delhi and saving precious lives.

I hope this annual report will help all the stakeholders involved in reducing road crashes in Delhi to help us build a city where we can save lives on the road.

Sanjay Arora, IPS
Commissioner of Police: Delhi

PREFACE

The Delhi Traffic Police constantly endeavors to reduce road crash fatalities in Delhi. Road crashes are preventable with a safe systems approach. By addressing not only the aftermath of the road crash but also the road infrastructure and the risk factors that contribute to road crashes, we can help in saving lives.

It is an established fact that improving road infrastructure particularly in design and standards by accounting for the vulnerable groups of road users such as pedestrians and motorcyclists, who are more at risk of dying in road crashes, can help in reducing deaths on the roads substantially.

Road crashes not only affect the livelihood of the persons involved in the crash but also leaves a longer imprint on the victims' families. It often pushes people on the brink of poverty and costs the Indian economy around 3-5 percent of the GDP per year. This has a direct impact on our country's development. Hence, it is in the best interest of all to work in preventing these crashes.

In an era of rapid economic development and increasingly growing numbers of vehicles on road, it is also imperative to adopt a smooth traffic management and surveillance system. The intelligent traffic surveillance includes the detection of moving vehicles, estimation of their speed and extracting its registration numbers. The Intelligent Traffic Monitoring System will help in reducing road crashes in Delhi.

I hope this annual report would be useful to administrators, policy makers and civil society organizations involved in the area of road safety and work towards creating safer roads for all.

Virender Singh, IPS
Special Commissioner of Police
Traffic Management Division/ Zone- I

Road traffic injuries cause considerable economic losses to individuals, their families, and to nations as a whole. These losses arise from the cost of treatment as well as lost productivity for those killed or disabled by their injuries, and for family members who need to take time off work or school to care for the injured.

Safe road infrastructure is essential to reduce road trauma. Road infrastructure must be planned, designed, built and operated to enable multimodal mobility, including shared/public transport, and walking and cycling. It must eliminate or minimize risks for all road users, not just drivers, starting with the most vulnerable. Minimum technical infrastructure standards are required, covering the safety of pedestrians, cyclists, motorcyclists, vehicle occupants, public transport users, freight operators and other mobility users.

During 2021, 4720 road crashes occurred in Delhi in which 4273 people were injured and 1239 people lost their lives. The data indicates that 41% of the total victims killed in road crashes were pedestrians and the second most vulnerable victims were scooter/motorcycle riders constituting 38% of fatalities.

The Accident Research Cell of Delhi Traffic Police, conducts in depth analysis of factors behind each fatal crash and suggest road safety interventions based on which Delhi police undertakes various measures viz Speed calming strips, increase strategic deployment and enforcement, alteration of road engineering, installation of CCTV cameras (RLVD & OSVD) etc. to reduce the number of crashes.

I hope that this "Delhi Road Crash Report - 2021" will be useful to understand the road safety status and to make coordinated efforts for realization of the objective of making Delhi roads safer. The report is also available in PDF format on our website at www.delhitrafficpolice.nic.in.

Surender Singh Yadav, IPS
Special Commissioner of Police
Traffic Management Division/ Zone - II

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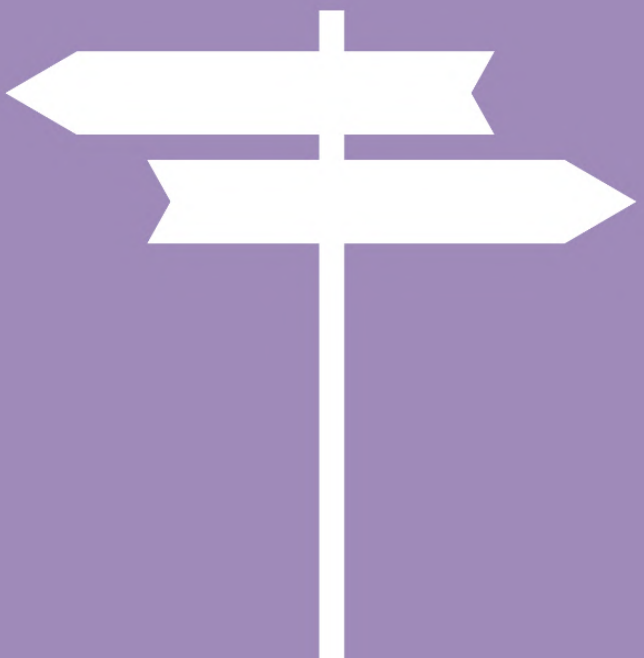
KEY FINDINGS

- In 2021, 4,720 road crashes killed 1,239 people in Delhi and injured 4,273 persons.
- There was an increase of 3.6 percent in fatal crashes in Delhi as compared to 2020. There was an increase of 13 percent in total crashes. However, the death rate per 1,00,000 population remains the same.
- Pedestrians were the most vulnerable victims. In 2021, 40.7 percent of the total persons killed in road crashes were pedestrians. Scooter/motorcycle riders were the second most vulnerable victims constituting 38.1 percent of the total persons killed.
- In 2021, car/taxis caused 176 fatal crashes accounting for 15 percent of total fatal crashes which was the maximum number for a vehicle type. HTVs came next with 145 fatal crashes (12%).
- Crash classification during day and night showed that in 2021, 561 fatal crashes occurred during the day, whereas 645 occurred during the night, despite fewer vehicles at night.
- Number of fatal crashes occurring after 1900 hrs till 0200 hrs on all days of week is higher as commercial vehicles are also allowed to ply on the roads during this period as the restriction on "No Entry" is released.
- The spatial distribution during 2021 remained uneven. Fatal crashes were more in areas with a mix of vulnerable road users, with heavy and high-speed vehicles.
- In 2021, 87 cluster points were identified as crash prone zones in Delhi, as per the criteria of three or more fatal crashes within a diameter of 500 meters or ten or more total crashes in the same region. The Outer Ring Road (18), Ring Road (14), GTK Road (8), Wazirabad Road (6) and NH-24 (5) have the maximum number of dangerous stretches among others.
- In 2021, 13,23,556 on the spot challans (1,78,634 compounded and 11,44,922 to court) and 65,69,985 notices (8,02,552 compounded and 41,71,650 to court) were issued and compounding amount of Rs. 9,79,80,500/- and Rs. 71,82,19,300/- respectively, was realised.

1 INTRODUCTION



Road crash injuries are a major but neglected public health challenge that requires concerted effort for effective and sustainable prevention. Of all the systems with which people have to deal everyday, road traffic systems are the most complex and the most dangerous. Worldwide, an estimated 1.3 million people are killed in road crashes each year and as many as 50 million are injured. Nevertheless, the tragedy behind these figures attracts less mass media attention than other public health issues and less frequent types of tragedy.

TOLL OF ROAD CRASHES

1.3 million
KILLED
50 million
INJURED

Everyone killed, injured or disabled by a road traffic crash has a network of others, including family and friends, who are deeply affected. Globally, millions of people are coping with the death or disability of family members from road traffic injury. While it would be impossible to attach a value to each case of personal loss and suffering, add up the values and produce a figure that captures the global social cost of road crashes and injuries.

FINANCIAL BURDEN TOO

3 to 5 Percent
GDP every year

Road traffic injuries place a heavy burden, not only on global and national economies but also on household finances. Many families are driven deeply into poverty by the loss of breadwinners and the added burden of caring for members disabled by road traffic injuries. As per the World Bank, road crashes cost the Indian economy 3 to 5 percent of GDP each year.

Historically, motor vehicle "accidents" have been viewed as random events that happen to others and as an inevitable outcome of road transport. The term "accident", in particular, can give the impression of inevitability and unpredictability – an event that cannot be managed. This is not the case. Road traffic crashes are events that are amenable to rational analysis and remedial action.

IT IS A CRASH NOT AN ACCIDENT

The World Health Organization characterizes road deaths as a preventable health epidemic. The way road crashes are framed plays a crucial role in how the masses perceive the issue and what can be done about it.

The Oxford English Dictionary defines the word "accident" as "an event that happens by chance or that is without apparent or deliberate cause." Unfortunately, this is contradictory to what we know about road crashes. Road crashes are a preventable cause of injury and death; and the causes of road crashes are not "by chance" - they can be identified and prevented. By calling them accidents, we dilute public support for policy solutions to road crashes, such as public support for the implementations of drink driving checkpoints, speed cameras, reduced speed limits, helmet clasping laws, and more.

In a study by Ralph et al, the authors note that: "referring to a car crash as an 'accident' is another missed opportunity for public health benefits. Using the term 'accident' to refer to a crash suggests inevitability and faultlessness, but in reality, most so-called accidents are 'predictable and preventable'".

In another paper, "Does News Coverage of Traffic Crashes Affect Perceived Blame and Preferred Solutions?" the authors Goddard et al notes that "editorial patterns in traffic crash reporting influence people's interpretation of what happened and what to do about it.?" By calling crashes "accidents", the public tragically thinks that little can be done. Goddard et al adds that correctly framing road deaths as crashes and not accidents, and other kinds of improved framing, serves as a "powerful tool in shifting cultural awareness of traffic crashes as a preventable public health issue. Given the potential to save human lives and prevent injury on a large scale, implementing more intentional editorial patterns may be nothing less than an ethical imperative."

ORGANIZATIONS THAT HAVE ADOPTED THE CHANGE:

- On Jan. 1 2016, the U.S. state of Nevada enacted a law, passed almost unanimously in the Legislature, to change “accident” to “crash” in dozens of instances where the word is mentioned in state laws, like those covering police and insurance reports.
- New York City adopted a policy in 2014 to reduce fatalities that states the city “must no longer regard traffic crashes as mere ‘accidents,’ ” and other cities, including San Francisco, have taken the same step.
- At least 28 U.S. state Departments of Transportation have moved away from the term “accident” when referring to roadway incidents, according to Jeff Larason, director of highway safety for Massachusetts. The Road Safety Administration changed its own policy in 1997, but has recently become more vocal about the issue.
- The Associated Press advises “when negligence is claimed or proven, avoid "accident," which can be read as a term exonerating the person responsible. In such cases, use "crash," "collision" or other terms.”
- Families for Safe Streets, an organization for the victims and family members of those involved in road crashes in New York City streets, is one of the groups pledged to changing the vocabulary surrounding crashes.
- Transportation Alternatives launched the ‘Crash Not Accident’ campaign asking people to pledge that they will stop using the word "accident" and replace it with “crash.”

ROAD INJURY PREVENTION AND CONTROL: THE NEW UNDERSTANDING

Road crash injury is largely preventable and predictable; it is a public health issue amenable to rational analysis and countermeasure[1].

Road safety is a multisectoral issue and a public health issue – all sectors, including health, need to be fully engaged in responsibility, activity and advocacy for road crash injury prevention.

Common driving errors and common pedestrian behavior should not lead to death and serious injury – the traffic system should help users to cope with increasingly demanding conditions.

The vulnerability of the human body should be a limiting design parameter for the traffic system and speed management is central.

Road crash injury is a social equity issue – equal protection to all road users should be aimed for since non-motor vehicle users bear a disproportionate share of road injury and risk.

Technology transfer from high-income to low-income countries needs to fit local conditions and should address research-based local needs.

Local knowledge needs to inform the implementation of local solutions.

Studies show that motor vehicle crashes have a disproportionate impact on the poor and vulnerable in society. Poorer people comprise the majority of casualties and lack ongoing support in the event of long-term injury. They also have limited access to post-crash emergency care. In addition, in many developing countries, the costs of prolonged medical care, the loss of the family breadwinner, the cost of a funeral, and the loss of income due to disability can push families into poverty.

A large proportion of the road crash victims in low-income and middle-income countries are vulnerable road users such as pedestrians and cyclists. They benefit least from policies designed for motorized travel, but bear a disproportionate share of the disadvantages of motorization in terms of injury, pollution and the separation of communities.

[1] WHO (World Health Organization). 2004. World Report on Road Traffic Injury Prevention 2004. https://www.who.int/publications/i/item/world-report-on-road-traffic-injury-prevention

Equal protection for all road users should be a guiding principle to avoid an unfair burden of injury and death for poorer people and vulnerable road users. This issue of equity is a central one for reducing the global burden of road crash death and injury.

With the help of crash trends analysis and the reasons behind road crashes, they can be prevented with road safety interventions. If greater attention in designing the transport system were given to the tolerance of the human body to injury, there could be substantial benefits. Examples include reducing speed in urban areas, separating cars and pedestrians by providing adequate pavements, improving the design of car and bus fronts to protect pedestrians, and a well-designed and crash-protective interface between the road infrastructure and vehicles.

IMPACT ON YOUNG POPULATION

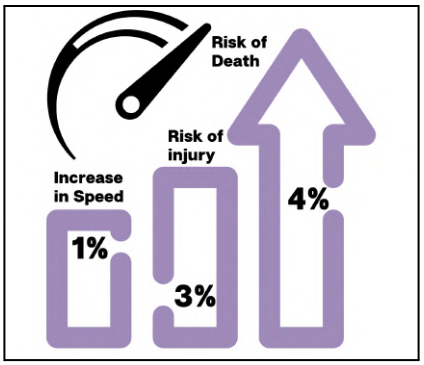
From a young age, males are more likely to be involved in road traffic crashes than females. About three quarters (73%) of all road traffic deaths occur among young males under the age of 25 years who are almost three times as likely to be killed in a road traffic crash as young females.

SPEED INCREASES ROAD CRASH LIKELIHOOD AND CHANCES OF DEATH

An increase in average speed is directly related both to the likelihood of a crash occurring and to the severity of the consequences of the crash. For example, every percent increase in mean speed produces a four percent increase in the fatal crash risk and a three percent increase in the serious crash risk.

The death risk for pedestrians hit by car fronts rises rapidly (4.5 times from 50 km/h to 65 km/h).

In car-to-car side impacts the fatality risk for car occupants is 85 percent at 65 km/h.



DRINK-DRIVING

In the case of drink-driving, the risk of a road traffic crash starts at low levels of blood alcohol concentration (BAC) and increases significantly when the driver's BAC is ≥ 0.04 g/dl.

HELMETS HELP MINIMIZE RISK OF ROAD CRASH DEATH

Correct helmet use can lead to a 42 percent reduction in the risk of fatal injuries and a 69 percent reduction in the risk of head injuries. Wearing a helmet with the BIS mark may help in minimizing the risk of injury in the event of a road crash. The Ministry of Road Transport and Highways (MoRTH) has passed a notification stating that only helmets which are BIS certified will be allowed for sale in the country from June 1, 2021.

SEAT-BELT USE

Wearing a seat-belt reduces the risk of death among drivers and front seat occupants by 45-50 percent, and the risk of death and serious injuries among rear seat occupants by 25 percent.

DISTRACTED DRIVING

Drivers using mobile phones are approximately four times more likely to be involved in a crash than drivers not using a mobile phone. Using a phone while driving slows reaction times (notably braking reaction time, but also reaction to traffic signals), and makes it difficult to keep in the correct lane, and to keep the correct following distances.

Hands-free phones are not much safer than hand-held phone sets, and texting considerably increases the risk of a crash.

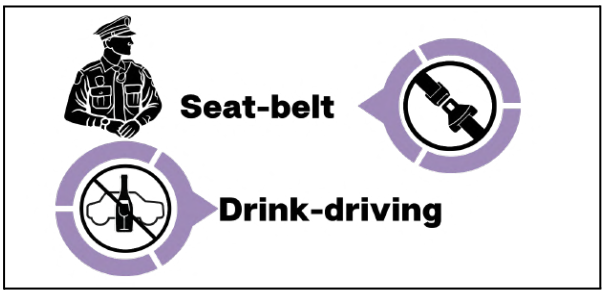
DESIGNING ROADS THAT ARE FORGIVING OF ROAD CRASHES

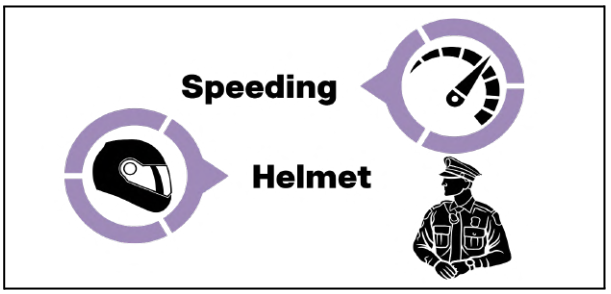
The design of roads can have a considerable impact on their safety. Ideally, roads should be designed keeping in mind the safety of all road users. This would mean making sure that there are adequate facilities for pedestrians, cyclists, and motorcyclists. Measures such as footpaths, cycling lanes, safe crossing points, and other traffic calming measures can be critical to reducing the risk of injury among these road users.

SAFE VEHICLES

Safe vehicles play a critical role in averting crashes and reducing the likelihood of serious injury. There are a number of UN regulations on vehicle safety that, if applied to countries' manufacturing and production standards, would potentially save many lives. These include requiring vehicle manufacturers to meet front and side impact regulations, to include electronic stability control (to prevent over-steering) and to ensure airbags and seat-belts are fitted in all vehicles. Without these basic standards the risk of traffic injuries – both to those in the vehicle and those out of it – is considerably increased.

ENFORCEMENT OF ROAD CRASH RISK FACTORS





If traffic laws on drink-driving, seat-belt wearing, speed limits and helmets are not enforced, they cannot bring about the expected reduction in road traffic fatalities and injuries related to specific behaviors[2].

[2] World Health Organization. (2021, June 21). Road Traffic Injuries Fact Sheets (https://www.who.int/news-room/fact-sheets/detail /road-traffic-injuries)

NATIONAL TRENDS

India ranks first in the number of road crash deaths across the 199 countries reported in the World Road Statistics, 2018 followed by China and the USA. As per WHO's Global Status Report on Road Safety, 2018, India accounts for almost 11 percent of the road crash related deaths in the world.

In 2020, 3,66,138 road crashes killed 1,31,714 persons and injured 3,48,279 persons. This would translate on an average into 1,003 road crashes and 361 deaths everyday or nearly 42 crashes and 15 deaths every hour in the country.

In 2020, road crashes in India decreased by 18.5 percent as compared to 2019. The number of persons killed decreased marginally by 12.8 percent and the number of persons injured decreased by 22.8 percent across the country.

TABLE 1.1: ROAD CRASHES, PERSONS KILLED & INJURED IN LAST FIVE YEARS 2016-2020

Year	Road Crashes	% Change	Persons Killed	% Change	Persons Injured	% Change
2016	4,80,652	-4.1	1,50,785	3.2	4,94,624	-1.1
2017	4,64,910	-3.3	1,47,913	-1.9	4,70,975	-4.8
2018	4,67,044	0.5	1,51,417	2.4	4,69,418	-0.3
2019	4,49,002	-3.9	1,51,113	-0.2	4,51,361	-3.9
2020	3,66,138	-18.5	1,31,714	-12.8	3,48,279	-22.8

(Source: Road Accidents in India 2020: Ministry of Road Transport and Highways)

ROAD CRASHES IN MILLION-PLUS CITIES

- In 2020[3] 50 million-plus cities accounted for 58,736 crashes (16 %) of the total crashes and 13,542 deaths (10 %) of total deaths in the country.
- Among all million-plus cities, Delhi reported the highest number of road crash deaths (1,196) followed by Chennai (872) and Bengaluru (646) in 2020.
- Among all states/ UTs, Delhi ranked 19th in terms of persons killed in road crashes in 2020. Uttar Pradesh ranked 1st, followed by Maharashtra at 2nd in terms of road crash deaths in 2020.

[3] Government of India, Ministry of Road Transport and Highway Transport Research Wing. 2022. Road Accidents in India - 2020. https://morth.nic.in/sites/default/files/ Road_Accidednt.pdf.

2

DELHI AT A GLANCE

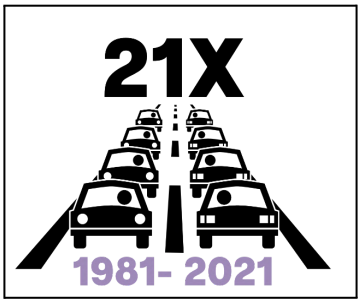
Over the years, Delhi has witnessed massive growth of population due to constant influx of people from neighboring states in search of employment and business attributing to rapid growth in vehicle volume. This has brought problems of traffic congestion, delays, improper parking, and pollution caused by vehicular emissions.

2020 and 2021 were especially more challenging for the traffic police because of the Covid-19 pandemic and the consequential lockdown coupled with social distancing norms in all aspects of life.

In 2021, Delhi Traffic Police followed multi-pronged strategies for managing traffic on Delhi roads based on enforcement action, regulation, education and engineering.

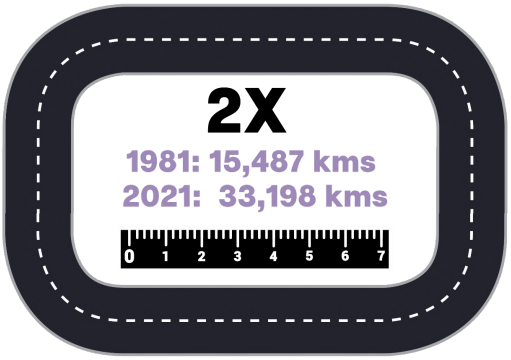
The National Capital Territory of Delhi covers an area of 1,483 sq. km. and has a population of around 203.4 lakhs (projected population of Delhi, 2021). Delhi has a total road length of 33,198 kms.

Economic development in the city along with an increase in population has created pressure on the supporting systems like housing, infrastructure, and transportation. It has also led to an increased demand for transportation, and thus, subsequently, to a phenomenal increase in the number of motor vehicles.



The human population, which was 62.20 lakhs in 1981 increased to 93.7 lakhs in 1991, 137.8 lakhs in 2001 to 203.4 lakhs (approx.) in 2021, showing more than two-fold increase in the last three decades.

There were over 122.53 Lakh registered vehicles of all categories in Delhi in 2021. Out of the total 122.53 lakh registered vehicles, 3.60 lakhs new vehicles were registered in 2021. The yearly compounding growth of vehicular population for the year 2021 was three percent.



Although the number of motor vehicles on Delhi roads has increased by approximately 21 times between 1981 to 2021, the road length has increased only two times, from 15,487 kms to 33,198 kms, during the period. Thus, the vehicle density per Sq. Km has increased manifold.

Private transport viz. private cars and two wheelers constitute 95 percent of all registered vehicles in Delhi. On the contrary, all categories of buses, which are the major source of public transportation, form less than 0.5 percent of the total vehicular population.

This increase in traffic volume has manifested itself in numerous transportation problems. The traffic volume on main corridors has almost crossed the threshold of carrying capacity of the roads. With the growth of population, and more vehicles on the road, the risk of crashes have also increased.

The heterogeneity and magnitude of vehicle population, unpredictability of human behaviour, economic constraints, insufficient road markings and signages, defective road designing, deficiencies in vehicle design, are some of the factors leading to road crashes in Delhi. In addition to it, drink-driving, overspeeding, overloading, violation of traffic rules are the common causes of traffic crashes.

SAFE ROAD INFRASTRUCTURE

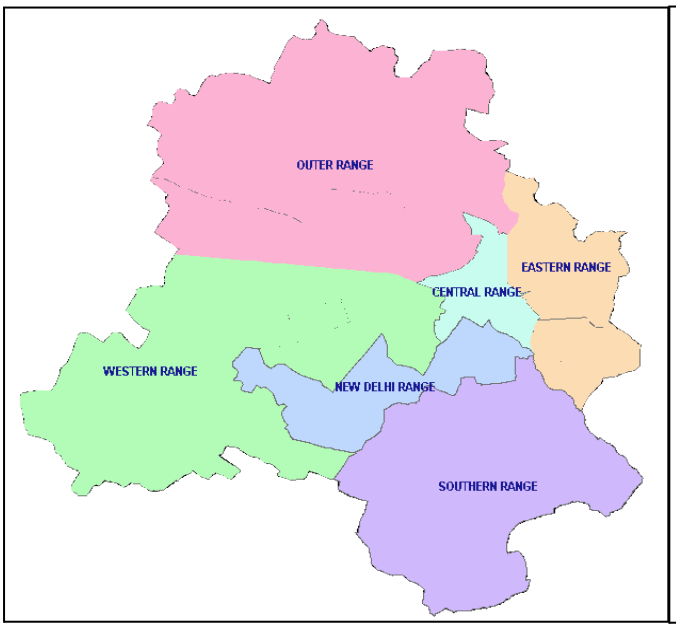
Prioritizing the needs of vulnerable road users and recognizing the importance of the road environment with appropriate modifications can bring a reduction in crashes.

Safe road infrastructure is essential to reduce road trauma. Road infrastructure must be planned, designed, built and operated to enable multimodal mobility, including shared/public transport, and walking and cycling.

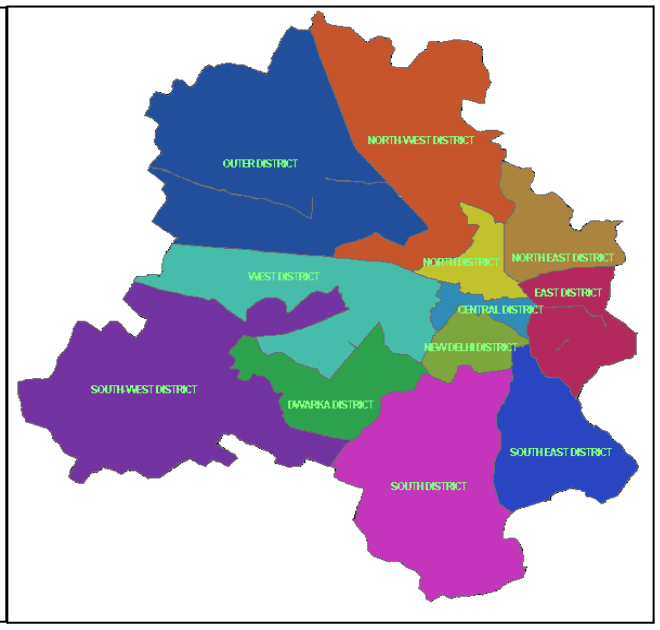
By building bicycle and pedestrian lanes, tunnels and car-free zones, and other environmental and engineering solutions, the level of pedestrian safety may be increased. Where road users cannot be separated by introducing the above mentioned means, pedestrian safety should be given priority over vehicular traffic – particularly by reducing speed.

However, with the increased presence and tactical deployment of traffic staff, the current traffic management strategies, use of modern technologies like R.L.V.D., O.S.V.D. cameras on strategic locations and other steps taken after in-depth analysis of cases of road crashes have proved to be effective in reducing the number of road crashes over the years.

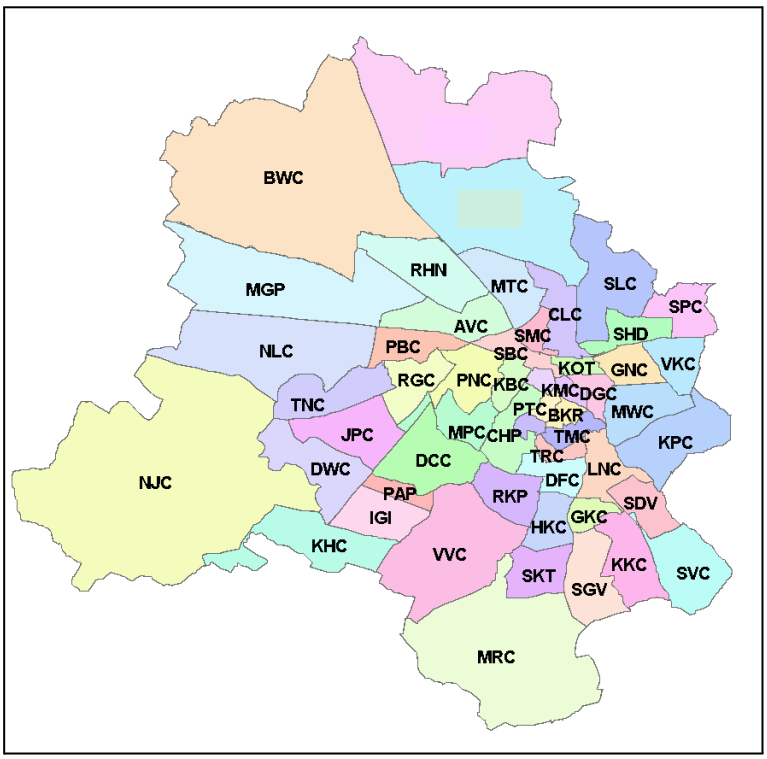
MAP 2.1: TRAFFIC RANGES (6)



MAP 2.2: TRAFFIC DISTRICTS (12)



MAP 2.3: TRAFFIC CIRCLES



VEHICLES IN DELHI

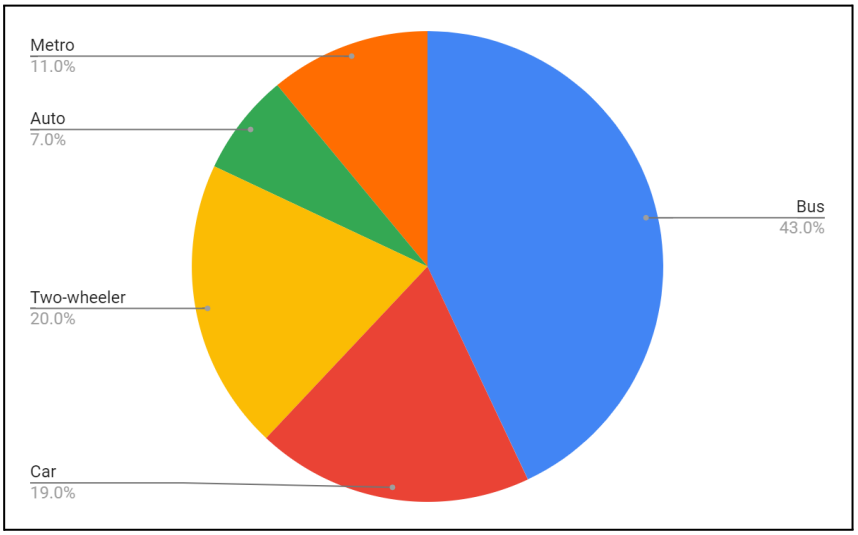
According to an estimate, altogether 48 different types of vehicles ply on Delhi roads. Delhi Metro has a network of more than 350 kms, as per DMRC.

In spite of this, Delhi faces huge congestion issues. This has its inevitable consequences in terms of crashes, pollution, rising commuting time, and wasteful energy/fuel consumption.

Delhi has lost the air quality gains achieved earlier through actions like large scale conversion of public transport buses and three wheelers to natural gas, relocation of polluting industries, and improvement in emission standards for vehicles among others. The loss is primarily owing to exponential growth in vehicle numbers due to increased dependence on personal vehicles in absence of adequate, comfortable and efficient public transport services, walking and cycling facilities.

Apart from the problems and requirements of transportation at the macro level, there are special problems in specific areas, particularly the old city, which deserve special attention.

FIGURE 2.1: ESTIMATED MODE WISE SHARE INCLUDING METRO RIDERSHIP IN 2021



(Source: School of Planning and Architecture, New Delhi)

Public transport systems such as buses, metro and commuter trains carry more people compared to private cars and are generally more affordable. They reduce exposure to crashes and are a key avenue to improve safety. Total registered motor vehicles figured at 12,253,350 for the year 2021, which is around 70 percent increase in a decade.

MOTOR ACCIDENTS CLAIMS TRIBUNAL

Delhi Motor Accident Claims Tribunal Rules, 2008 came into force on 13th July, 2009 under the Motor Vehicles Act, 1988. MACT Courts in Delhi deal with claims related to loss of life, property and injury due to road crashes. Recently, Section 161 (effective April 2022), as amended under the MVA 2019, the compensation for death due to hit and run crash is increased from Rs 25,000 to Rs 2 lakhs. For grievous injuries due to hit and run crash, the compensation is increased from Rs 12,500 to Rs 50,000.

Process: Injured persons above 18 years of age can themselves file for compensation or through their advocates. Legal heir of a death victim can file for compensation or through their advocates. Victim or heir below the age of 18 years has to do it through an advocate. The claims are directly filled in the concerned tribunal which are presided over by Judicial Officers. “Investigation Officer” from Delhi Police (Law & Order) submits the documents including FIR, MLC/ post-mortem report, fitness, permit and the relevant

documents for assessment of compensation. Once it is assessed, MACT courts decide on the amount of compensation to the applicants.

TABLE 2.1: MOTOR VEHICLES REGISTERED IN DELHI, 2012-2021

Year	Private Cars	M. Cycles/ Scooters	Taxis	TSRs	Goods Vehicles Delivery Vans and Others	Buses (Mini, Pvt. and others)	Total Motor Vehicles (cumulative)
2012	2,343,113	4,644,146	69,780	88,197	228,886	64,033	7,438,155
2013	2,474,087	4,962,507	70,335	86,838	140,942	39,694	7,774,403
2014	2,629,343	5,297,697	78,686	91,840	154,654	40,947	8,293,167
2015	2,790,566	5,681,265	79,606	81,633	161,821	32,540	8,827,431
2016	2,986,579	6,104,070	91,073	1,98,137	281,159	43,723	9,704,741
2017	3,152,710	6,707,891	1,48,434	1,74,000	2,31,767	38,265	10,482,757
2018	3,334,298	7,185,033	1,56,793	1,88,173	2,71,017	39,273	11,204,277
2019	3,249,670	7,556,002	1,09,780	1,13,240	3,30,641	32,218	11,391,551
2020	3,311,579	7,959,753	1,22,476	1,14,891	3,50,876	33,302	11,892,877
2021	3,384,736	8,239,550	1,12,401	1,14,869	3,68,500	33,294	12,253,350

(Source: Statistical Handbook of Delhi & Transport Department GNCTD)

Capturing 67 percent vehicle share on Delhi roads, two-wheelers constitute a bulk of the vehicular traffic in the city. The private cars/jeeps constitute 28 percent share of total registered motorized vehicles. In other words, private vehicles constitute around 95 percent of total registered vehicles in Delhi.

In contrast, buses and TSRs constitute only 0.3 percent and 0.9 percent of the total vehicles respectively.

Increase in the number of two wheelers and private cars has been much higher than other types of vehicles. 360,473 vehicles were added in 2021. The actual growth of total newly added vehicles is mainly due to two wheelers and cars (Table 2.2).

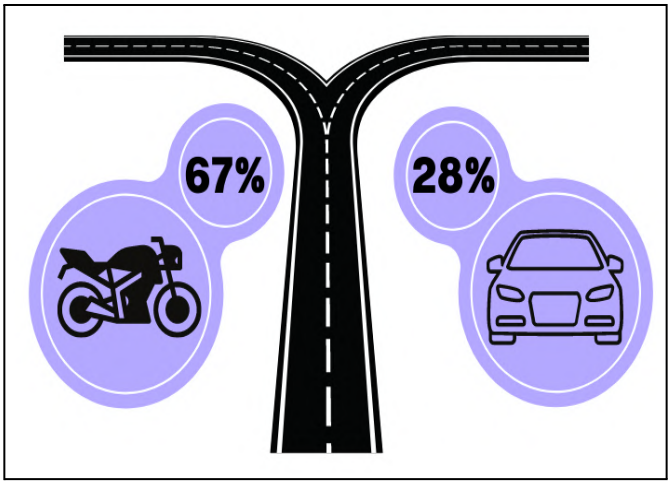


TABLE 2.2: GROWTH / DECLINE IN MOTOR VEHICLE REGISTRATION, 2012-2021

Year	Private Cars	M. Cycles/ Scooters	Taxis	TSRs	Goods Vehicles	Buses	Total Regd. Vehicles	Yearly Growth (%)
2012	169,790	301,743	11,822	16	19,516	2,562	505,449	7.3
2013	130,974	318,361	555	(-) 1359	(-)87,944	(-)24,339	336,248	4.5
2014	155,256	335,190	8,351	5002	13,712	1,253	518,764	6.7
2015	161,223	383,568	920	(-) 10,207	7,167	(-)8,407	534,264	6.4
2016	196,013	422,805	11,467	116,504	119,338	11,183	877,310	9.9
2017	166,131	603,821	57,361	(-) 24,137	(-) 49,392	(-) 5,458	778,016	8.0
2018	181,588	477,142	8,359	14,173	39,250	1,008	721,520	6.9
2019	(-) 84,628	370,969	(-) 47,013	(-) 74,933	59,624	(-) 7,055	187,274	1.7
2020	61,909	403,751	12,696	1,651	20,235	1,084	501,326	4.4
2021	73,157	279,797	-10,075	-22	17,624	(-) 8	360,473	3.0

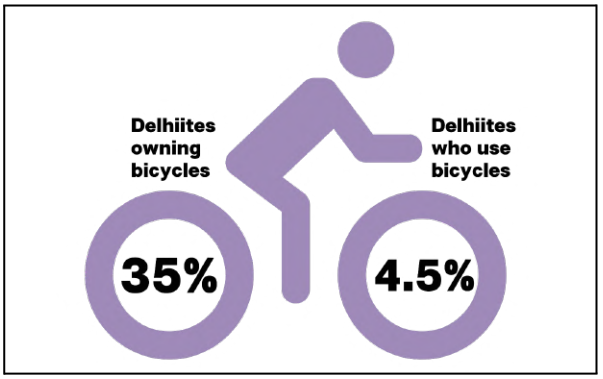
TABLE 2.3: SLOW MOVING VEHICLES IN DELHI

Year	Cycle Rickshaws	Tongas	Rehras	Hand Carts	Bullock Carts	Cycle Rickshaw Trolleys	Total Slow-Moving Vehicles
2010	89,429	242	42	3,116	137	100,665	193,252
2011	89,429	242	42	3,116	137	115,000	207,587
2012	89,429	242	42	3,116	137	115,000	207,587

(Source: Official figures as provided by M.C.D. Figure for later years is not available.)

Inadequate cycling facilities is slowly pushing the population to depend on the use of motorized private vehicles, thereby causing loss to clean environment, health and life in far greater numbers than was the case two decades earlier.

Though 35 percent of the population of Delhi owns cycles, only 4.5 percent uses them for commuting due to lack of safe cycling facilities or cycle-parking facilities. With inadequate cycling facilities, people tend to spend comparatively more money to reach the bus/metro station than on the bus/metro fare which they take for their onward journey.



Further, due to fast development of National Capital Region and particularly the satellite towns around Delhi

like Noida, Gurgaon, Rohtak, Manesar, Sonipat, etc., the Capital City is facing an additional brunt of an influx of higher volume of traffic thereby congesting important interstate roads and highways connecting the city.

All National Highways i.e. NH-44 (Earlier NH-1), NH-2, NH-48 (Earlier NH-8), NH-9 (Earlier NH-10) and NH-9 (Earlier NH-24) are carrying a high volume of traffic. The traffic so discharged on Ring Road and Outer Ring Road further blocks the circular roads of the city. Hence, the actual traffic volume in Delhi is much higher and increasing steadily.

Vehicles registered in Haryana were responsible for the highest number of fatal crashes in Delhi among the vehicles registered in other states. Out of the total 1,206 fatal crashes reported in 2021, 123 were caused by vehicles registered in Haryana.

POPULATION, VEHICLES AND ROAD CRASH TRENDS

The estimated total population of Delhi is 2,03,41,192 at the end of the year 2021. Hence, the population density in Delhi is more than 13,716 persons per sq. Km. Likewise, the per capita registered vehicles in Delhi comes very close to having 1 vehicle for every 2 persons in the city (1: 1.7).

TABLE 2.4: ROAD CRASH TRENDS

Year	Population (Cumulative)	Motor Vehicles (Cumulative)	Fatal crashes	Total crashes (All Types)	Road Deaths (Per Year)	Death Rate		Crash Severity*
						Per one lakh population	Per 10,000 vehicles	
2012	17,174,897	7,438,155	1,822	6,937	1,866	10.9	2.5	26.9
2013	17,499,502	7,774,403	1,778	7,566	1,820	10.4	2.3	24.0
2014	17,830,242	8,293,167	1,629	8,623	1,671	9.4	2.0	19.4
2015	18,167,233	8,827,431	1,582	8,085	1,622	8.9	1.8	20.1
2016	18,510,594	9,704,741	1,548	7,375	1,591	8.6	1.6	21.6
2017	18,860,444	10,482,757	1,565	6,673	1,584	8.4	1.5	23.7
2018	1,92,16,906	11,204,277	1,657	6,515	1,690	8.8	1.5	25.9
2019	1,95,80,105	11,391,551	1,433	5,610	1,463	7.5	1.3	26.1
2020	1,99,52,126	11,892,877	1,163	4,178	1,196	6.0	1.0	28.6
2021	2,03,41,192	12,253,350	1,206	4,720	1,239	6.1	1.0	26.3

Note: - * crash Severity: Road crash deaths per 100 crashes.

Fatality rate per one lakh population has shown a declining trend since 2012. The fatalities have been showing a downward trend from 2009 but in 2018, the trend was reversed, as the fatality rate increased. In 2021, the fatality rate almost remained the same.

3

ROAD CRASH VICTIMS

More than half of all road crash deaths globally are among vulnerable road users: pedestrians, cyclists, motorcyclists and three-wheeler occupants.

Pedestrians, cyclists, riders of motorized two-wheelers, and riders/passengers of three-wheelers are collectively known as "vulnerable road users", and account for half of all road crash deaths around the world. A higher proportion of vulnerable road users die in low-income countries than in high-income countries[4].

Vulnerable road users groups[5] are more at risk because they do not have the protective covering that can minimize the effects of road crash, as opposed to the covering provided by cars and heavy vehicles.

Vulnerable road users cannot afford safe vehicles. They are largely ignored in the planning, design and operation of roads. In many countries, roads still lack separate lanes for cyclists or adequate crossings for pedestrians and allow speed limits that are too high.

Vulnerable road users[6] are at an additional risk where their needs have not been taken into consideration during the planning of land use or road engineering. In most countries, roads are planned and built to allow motor vehicles to travel faster while insufficient thought is given to the needs of pedestrians and cyclists. This forces them to face increased risk of death while using roads.

VULNERABLE ROAD USERS IN ROAD CRASHES

In 2021, 22.5 percent of the total road crash victims lost their lives as compared to 24.6 percent in 2020. The fatality rate amongst all road crash victims has been decreasing steadily for the last few years, except in the 2018 and the year 2021, wherein fatality rate had increased.

PEDESTRIANS

Pedestrians are the most vulnerable victims in fatal road crashes and continue to suffer the highest casualties in preventable road crashes. In 2021, a total of 504 pedestrians lost their lives and 1,536 were injured, as compared to 505 pedestrians who lost their lives and 1241 pedestrians who were injured in 2020. This represents 40.7 percent amongst all victims killed in 2021 as compared to 42.2 percent in 2020.

Proportions for the injured pedestrians were higher i.e. 35.9 percent in 2021 against 33.9 percent in 2020. The trend in the deaths of pedestrians shows that the share of pedestrian deaths range between 40 percent and 50 percent of the total victims of fatal crashes.

[4] World Health Organization. (2018 December 17). 10 Facts about road safety. https://www.who.int/news-room/facts-in-pictures/detail/road-safety

[5] WHO (World Health Organization). 2018. Global Status Report on Road Safety 2018. https://www.who.int/ violence_injury_prevention/road_safety_status/2018/en/.

[6] World Health Organization. (2013). WHO global status report on road safety 2013: supporting a decade of action. https://apps.who.int/iris/handle/10665/78256

ROAD DESIGN FOR PEDESTRIAN SAFETY

Lack of proper and sufficient number of pedestrian crossings, Foot Over Bridges (FOBs), subways, encroachment, unwalkable and poorly maintained footpaths, ignorance of road safety rules, disregard to other road users rights by vehicle drivers are the major reasons for such road crashes.

The condition of road crossing facilities is not pedestrian friendly, and generally poor. Faulty designing of FOBs, lack of accessible escalators for disabled, lack of accessible footpaths for persons with disabilities, dark and dingy subways, inadequate number of FOBs/subways, lack of signages, etc., lead to unsafe pedestrian crossing.

MOTORCYCLISTS

After pedestrians, motorcyclists are the next most vulnerable category of victims and account for 472 (38.1%) of all fatalities in road crashes in Delhi and 1,868 (43.7%) of all injured victims in 2021. In 2021, fatal crashes involving two-wheeler riders increased. Two-wheeler riders injured in road crashes also increased from 1,613 in 2020 to 1,868 in 2021.

Crash data suggests that two-wheeler riders were victims in one of every three road crash deaths or injuries. One important fact that can be noted is that the share of two-wheeler riders as victims (fatalities and injuries) is gradually increasing.

Over the years, the share of deaths of car occupants out of total fatalities has remained between two percent and four percent. The share of deaths of car occupants increased from 3.1 percent (2020) to 3.4 percent (2021). In case of non-fatal injuries, it has remained between four percent and eight percent over the years. Bus commuters are among the safest road users.

CYCLISTS

The cyclists' share in road crash victims remained around 2 percent to 4 percent during the last eight years. For cyclists injured in road crashes, the percentage has been reducing gradually over the last 15 years, and has come down from 5.1 percent in 2007 to 2.9 percent in 2021. Proportion of cyclists killed (3.6 percent in 2021 against 4.0 % in 2020) and injured (2.9 % in 2021 against 3.1 % in 2020) were less than in 2020.

ELECTRIC RICKSHAWS

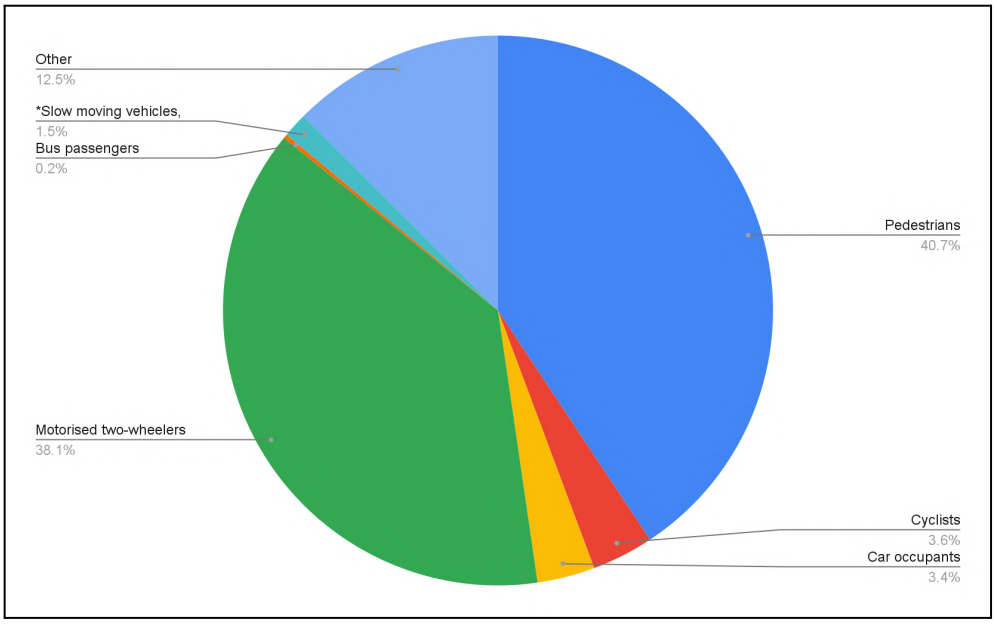
Electric rickshaw occupants were victims in seven fatal crashes and in 55 simple crashes in 2021, resulting in the death of seven persons and 87 injuries.

TABLE 3.1: VICTIMS KILLED & INJURED

Year	Pedestrians		Cyclists		Car Occupants		Scooter / M. Cycle Riders		Bus Passengers		*Slow Moving Vehicles' Puller And Passengers		Drivers Of Animal Driven Vehicle		Other Drivers		Total	
	Kld	Inj	Kld	Inj	Kld	Inj	Kld	Inj	Kld	Inj	Kld	Inj	Kld	Inj	Kld	Inj	Kld	Inj
2017	702	2283	67	154	53	404	557	2680	7	71	24	198	3	18	171	796	1584	6604
2018	775	2160	53	155	66	307	570	2542	9	39	17	158	4	26	196	699	1690	6086
2019	678	1887	36	108	39	281	496	2110	5	30	26	151	1	10	182	575	1463	5152
2020	505	1241	48	115	37	184	441	1613	5	18	21	110	2	9	132	372	1196	3662
2021	504	1536	45	123	42	158	472	1868	3	12	18	145	0	7	155	424	1239	4273

* Hand Cart, Electric rickshaw and Cycle Rickshaw.

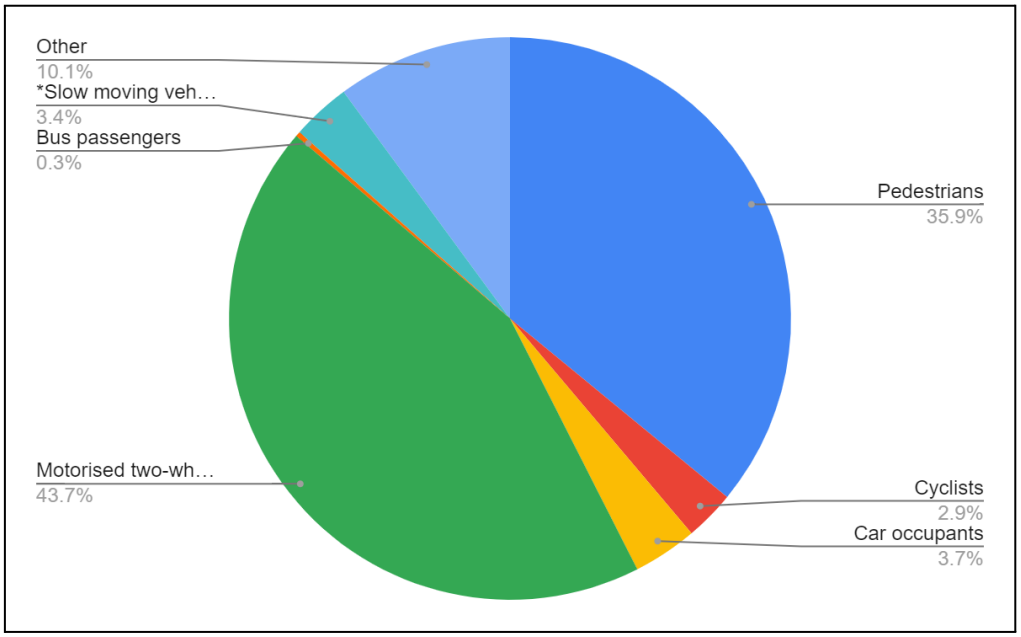
FIGURE 3.1: TYPE OF ROAD USERS KILLED IN ROAD CRASHES



* Hand Cart, Electric rickshaw and Cycle Rickshaw.

Of all the victims killed in road crashes, 40.7 percent were pedestrians and 38.1 percent were motorcyclists. Around 84 percent of persons killed were vulnerable road users.

FIGURE 3.2: TYPE OF ROAD USERS INJURED IN ROAD CRASHES



* Hand Cart, Electric rickshaw, Cycle Rickshaw and bus passengers.

Of all the injured victims, 43.7 percent were motorcyclists and 35.9 percent were pedestrians.

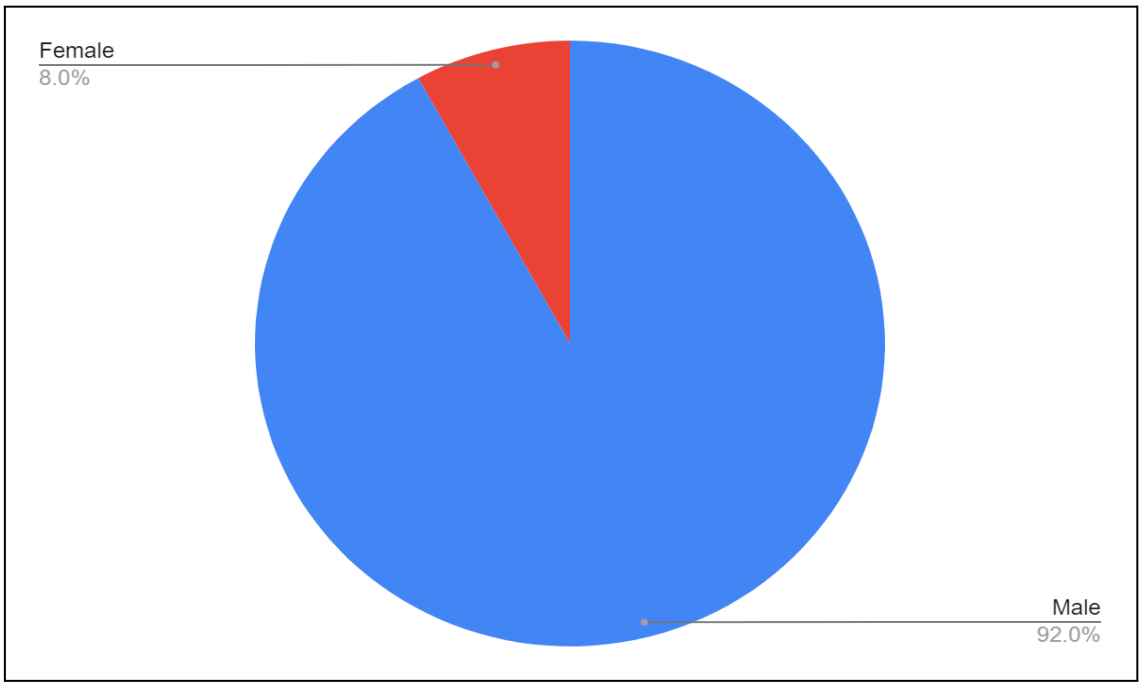
DEMOGRAPHIC CLASSIFICATION OF ALL VICTIMS

In all, 1,092 male adults and 87 female adults were killed while 3,536 male adults and 441 female adults were injured in road traffic crashes. Of all fatal crash death victims aged under 18, 48 were boys and 12 were girls, whereas 221 boys and 75 girls were injured.

TABLE 3.2: AGE AND GENDER OF CRASH VICTIMS

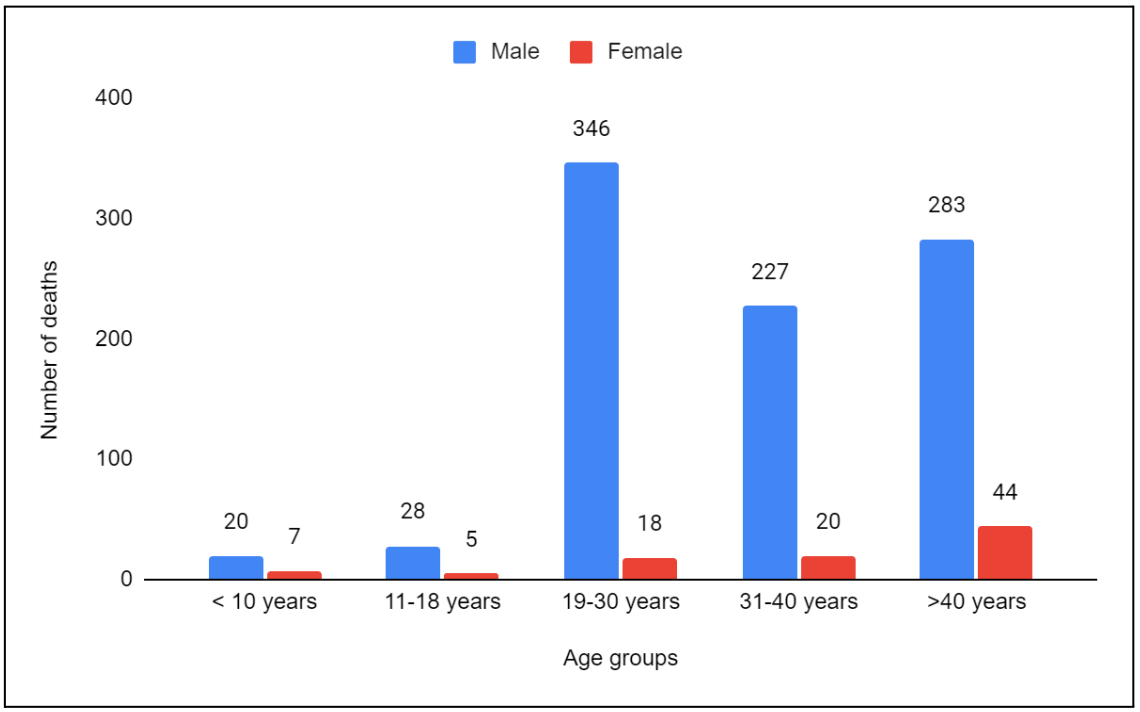
Year	Below 18 Years				Above 18 Years			
	Killed		Injured		Killed		Injured	
	Male	Female	Male	Female	Male	Female	Male	Female
2017	91	38	514	141	1318	137	5104	845
2018	88	29	418	142	1439	134	4862	664
2019	67	22	307	89	1262	112	4200	556
2020	40	21	187	51	1049	86	3060	364
2021	48	12	221	75	1092	87	3536	441

FIGURE 3.3: CRASH DEATHS BY GENDER



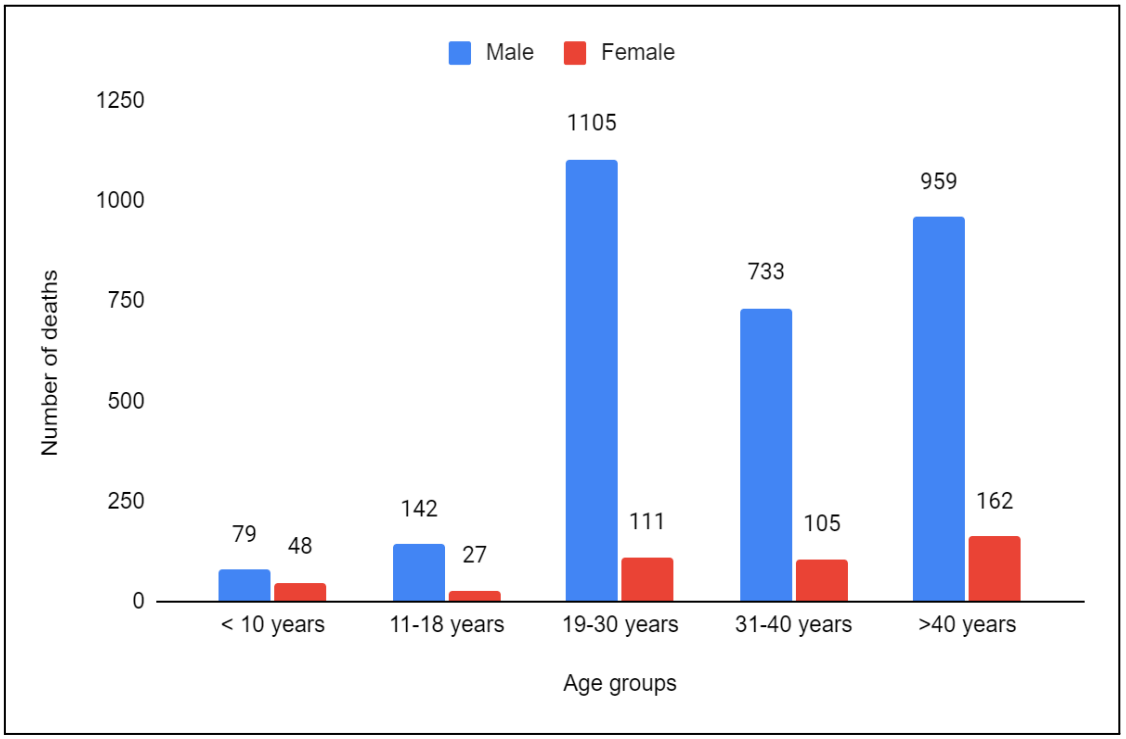
Males accounted for 92 percent of the road crash death victims.

FIGURE 3.4: AGE AND GENDER OF FATAL VICTIMS



Maximum males killed in road crashes were in the age group of 19-30 years while women were in the age group of above 40 years.

FIGURE 3.5: AGE AND GENDER OF INJURED VICTIMS



Note: Age of 241 fatal crash victims was unknown while for injured victims age was known for 802 victims

Maximum males injured were in the age group of 19-30 years while women were in the age group of above 40 years.

4

AT-FAULT VEHICLES

Safe vehicles play a critical role in averting crashes and reducing the likelihood of serious injury[7].

Vehicles sold in 80 percent of all countries worldwide fail to meet basic safety standards.

The safety of vehicles plays a critical role both in averting crashes and reducing the likelihood of serious injury in the event of a crash.

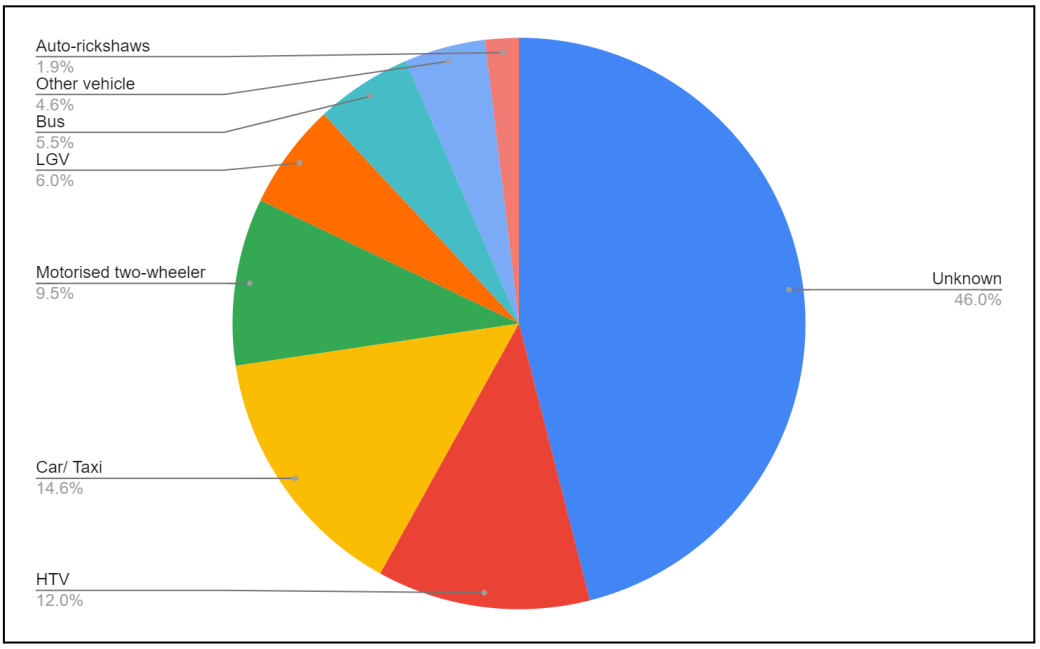
The size and speed of impacting vehicles is a pertinent determinant of the extent of damage and severity of crashes. With improvements in technology, the individual/private vehicles have become safer for the passengers.

However, given the fact that Indian roads have a wide range of heterogeneous and mixed variety of road users, there is a need to minimize danger to the pedestrians and other small vehicles including non-motorized vehicles.

Over the years, vehicles are improving and being made safer for passengers, with air bags, anti-lock braking system (ABS), strong and non-collapsible body, protective internal design and having safe exit in case of mishap.

The vehicle-wise analysis of crashes provides a broad overview of the involvement of vehicles at fault in crashes.

FIGURE 4.1: AT-FAULT VEHICLES RESULTING IN FATAL CRASHES



Note: At-fault vehicles were unknown for 555 fatal crashes.

In 2021, cars/taxis caused 176 fatal crashes accounting for 14.6 percent of total fatal crashes, also the highest crash share by vehicle type, as compared to 2020 wherein they accounted for 153 (13.2 %) fatal crashes. HTVs come next with 145 fatal crashes (12 %) in 2021 which has increased from 9.5 percent recorded in 2020. Two-wheelers caused 9.5 percent of total fatal crashes in 2021 while for 2020, it was 10.5 percent.

[7] World Health Organization. (2018 December 17). 10 Facts about road safety. https://www.who.int/news-room/facts-in-pictures/detail/road-safety

As compared to 2020, where cars/taxis caused 34 percent of all simple crashes in non-fatal crashes, in 2021 they caused only 30 percent simple crashes. Two-wheeler riders (scooters/motorcycles) were next with 16 percent of simple crashes this year, which is higher than the share in 2020, viz. 14 percent.

Light goods vehicles (LGVs) have been showing an increasing trend in fatal crashes.

Fatal crashes by city buses have increased while there is a minor decrease for simple crashes by buses in 2021 as compared to the previous year.

In 2021, 504 pedestrians died in 497 crashes caused by all types of vehicles as compared to 505 pedestrian deaths in 2020. The pedestrian casualties due to car/jeep/taxis were 61 this year in comparison to 53 in 2020. Two-wheelers caused 34 pedestrian deaths in 2021 against 44 in 2020. In 2021, 297 pedestrians were killed by unknown vehicles against the same figures in 2020.

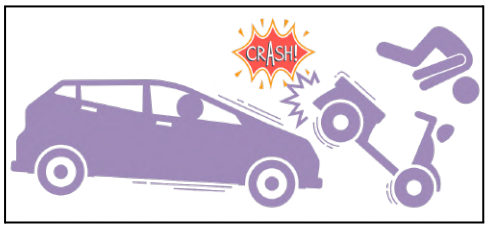
TABLE 4.1: PROFILE OF VEHICLES AT FAULT

Types Of Vehicle	Fatal Crashes			Simple Crashes			Total Crashes		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
Ambulance	2	1	2	4	8	13	6	9	15
Bullock Cart	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0
Call Centre Cab	0	0	0	2	2	1	2	2	1
Cluster Bus	23	20	29	40	57	69	63	77	98
Crane	7	12	8	17	11	15	24	23	23
Cycle Rickshaw	0	2	0	0	3	4	0	5	4
Delivery Van	10	10	13	58	50	45	68	60	58
DTC Bus	20	19	17	77	54	66	97	73	83
E-Rickshaw	4	1	10	42	37	45	46	38	55
Goods Carrier *	165	104	142	205	145	190	370	249	332
Gramin Sewa	7	3	5	24	17	16	31	20	21
Military Vehicle	0	2	0	1	4	0	1	6	0
Mini Bus	14	5	7	40	15	13	54	20	20
Other State Bus	11	2	1	8	4	3	19	6	4
Police Vehicle	0	0	0	1	0	0	1	0	0
Private Bus	26	13	12	79	34	38	105	47	50
Private Car	202	146	168	1340	972	1003	1542	1118	1171
Road Roller	0	0	0	0	0	1	0	0	1
School Bus	2	0	0	10	0	1	12	0	1
Scooter / M. Cycle	144	126	114	657	425	562	801	551	676
Tanker	9	7	3	12	8	9	21	15	12

Taxi	11	7	8	101	55	51	112	62	59
Tempo	67	56	72	200	156	172	267	212	244
Tonga/Rehra	0	0	0	0	0	1	0	0	1
Tractor	18	19	17	26	11	18	44	30	35
TSR	17	29	23	142	85	143	159	114	166
Unknown Vehicle	674	579	555	1091	862	1035	1765	1441	1590

TABLE 4.2: AT-FAULT AND VICTIM VEHICLES (FATAL CRASHES-2021)

Victims	**At-fault vehicles**								
	Heavy vehicles	**LGVs**	**Bus**	**Car/Jeep/ Taxi**	**TSR**	**SC/MC**	**Unknown**	**Others**	**Total**
Pedestrians	41	19	20	61	11	34	297	14	497
SCs/MCs	81	34	31	61	4	15	212	21	459
Self	2	2	0	12	4	59	0	7	86
Cyclists	6	9	4	15	0	5	12	0	51
TSRs	3	2	3	4	2	0	13	2	29
Car/ Jeep/ Taxis	8	1	2	11	1	0	14	0	37
Others	2	2	2	7	1	1	4	3	22
LGVs	7	2	1	5	0	0	2	0	17
Heavy Vehicles	3	1	0	0	0	0	1	0	5
Passengers	0	0	3	0	0	0	0	0	3
Total	153	72	66	176	23	114	555	47	1206



Two-wheeler riders have emerged as second most crash-prone victims. The data shows 459 two-wheelers fatal crashes in 2021 as compared to 432 in 2020. These two-wheelers were worst hit by Heavy Vehicles (81) followed by car/jeep/taxis (61) in 2021. A total of 212 riders have been killed by unknown vehicles this year, which is less than 243 recorded in 2020.

Fatal crashes by self-hit accounted for 86 crashes in 2021 as against 91 in 2020. Further two-wheeler riders top this category, 59 in 2021 as against 57 in 2020. Cars/jeeps/taxis occupants are the next higher number of victims of fatal crashes due to self-hit.

There was a decrease in cyclist-related fatal crashes in 2021 (45) over 2020 (48). These crashes have been caused by cars/taxis followed by unknown vehicles, LGVs, Heavy Vehicles and two-wheelers.

TABLE 4.3: AT-FAULT AND VICTIM VEHICLES (TOTAL CRASHES-2021)

Victims	At-fault vehicles								
	Heavy vehicles	LGV	Bus	Car/ Jeep/ Taxi	TSR	SC/MC	Unknown	Others	Total
SCs/MCs	183	116	105	583	56	145	655	94	1937
Pedestrians	90	67	81	355	61	377	806	61	1898
Cyclists	16	16	10	59	12	35	31	5	184
Car/ Jeep/ Taxis	25	9	8	74	6	8	39	4	173
Self	2	4	0	21	21	102	0	13	163
TSRs	11	10	18	67	3	4	32	5	150
Others	8	6	5	30	3	2	9	5	68
E-Rickshaws	3	5	9	30	3	2	8	2	62
LGVs	20	6	4	10	0	0	7	0	47
HTVs	10	3	0	2	0	0	3	0	18
Passengers	0	0	15	0	0	0	0	0	15
Bus	0	2	1	0	1	1	0	0	5
Total	368	244	256	1231	166	676	1590	189	4720

STATE-WISE CLASSIFICATION OF AT-FAULT VEHICLES AND VICTIMS

As per the data, vehicles registered in Delhi caused more fatal crashes (66.3 % of the vehicles with registration details) followed by those registered in Haryana (22.5 %), and in Uttar Pradesh (5.9 %). This scenario is similar to that of the year 2020. In case of simple crashes, offending vehicles are not known in 1,470 cases against the total 3480 simple crash cases. Out of those cases in which registration number of offending vehicles is known, Delhi stands at 76.6 percent (1540 cases), Haryana at 13.4 percent, and Uttar Pradesh at (6.5 %). HTVs registered in Haryana were involved in 66 (51.2 %) fatal crash cases. The data shows that 52 buses registered in Delhi caused fatal crashes (89.7 % of fatal crashes caused by buses and in which registration number of offending vehicles is available).

TABLE 4.4: CRASHES CAUSED BY STATE-WISE REGISTERED VEHICLES

State	Non-Injury Crashes	Simple Crashes	Fatal Crashes	Total Crashes	Persons Injured	Persons Killed
Bihar	0	0	1	1	1	1
Chandigarh	0	5	0	5	8	0
Delhi	25	1540	362	1927	1948	375
Gujarat	0	1	1	2	1	1
Haryana	6	269	123	398	350	133
Himachal Pradesh	0	4	2	6	4	2

Jammu & Kashmir	0	1	0	1	1	0
Jharkhand	0	0	1	1	1	1
Karnataka	0	1	0	1	1	0
Kerala	0	1	0	1	1	0
Madhya Pradesh	0	4	2	6	5	2
Maharashtra	0	6	0	6	6	0
Nagaland	0	6	3	9	9	3
Punjab	0	10	5	15	17	6
Rajasthan	0	22	11	33	26	15
Sikkim	0	1	0	1	1	0
Tamilnadu	0	1	1	2	1	1
Telangana	0	2	0	2	2	0
Uttar Pradesh	2	130	32	164	174	33
Uttarakhand	0	5	2	7	5	2
West Bengal	0	1	0	1	1	0
State unknown	1	1470	660	2131	1710	664
Total	**34**	**3480**	**1206**	**4720**	**4273**	**1239**

TABLE 4.5: STATE-WISE REGISTERED VEHICLES AT FAULT (FATAL CRASHES)

State	At-Fault Vehicle								
	Two-wheelers	TSRs	Car/ Taxis	Buses	LGVs	HTVs	Unknown vehicles	Others	Total
Bihar	0	0	0	0	0	1	0	0	1
Delhi	80	15	99	52	58	36	0	22	362
Gujarat	1	0	0	0	0	0	0	0	1
Haryana	2	1	34	1	8	66	0	11	123
Himachal Pradesh	0	0	1	0	0	1	0	0	2
Jharkhand	0	0	1	0	0	0	0	0	1
Madhya Pradesh	0	0	0	1	0	1	0	0	2
Nagaland	0	0	0	0	0	3	0	0	3
Punjab	0	0	1	1	0	3	0	0	5
Rajasthan	0	0	1	0	1	9	0	0	11
Tamil Nadu	0	0	0	0	0	1	0	0	1
Uttar Pradesh	4	0	11	3	3	7	0	4	32

Uttarakhand	0	0	1	0	0	1	0	0	2
State Unknown	27	7	27	8	2	16	555	18	660
Total	**114**	**23**	**176**	**66**	**72**	**145**	**555**	**55**	**1206**

On analyzing the fatal crash category of the offending vehicles belonging to Delhi state, it is found that car/taxis were responsible for most of the fatal crashes (99 i.e. 27.3%) followed by two-wheelers (80 i.e. 22.1%) and LGVs (58 i.e.16%).

TABLE 4.6: STATE-WISE REGISTERED VEHICLES AT FAULT (ALL CRASHES)

State	At-Fault Vehicles								
	Two-Wheelers	Tsrs	Car/ Taxis	Buses	Lgvs	Htvs	Unknown Vehicles	Others	Total
Bihar	0	0	0	0	0	1	0	0	1
Chandigarh	0	0	4	0	0	1	0	0	5
Delhi	461	118	775	199	193	95	1	85	1927
Gujarat	1	0	1	0	0	0	0	0	2
Haryana	25	5	154	5	28	149	1	31	398
Himachal Pradesh	1	0	3	0	0	1	0	1	6
Jammu And Kashmir	0	0	0	0	0	1	0	0	1
Jharkhand	0	0	1	0	0	0	0	0	1
Karnataka	0	0	0	0	0	1	0	0	1
Kerala	1	0	0	0	0	0	0	0	1
Madhya Pradesh	0	0	1	1	0	3	0	1	6
Maharashtra	0	0	5	0	0	1	0	0	6
Nagaland	0	0	0	0	0	9	0	0	9
Punjab	1	0	7	2	0	5	0	0	15
Rajasthan	0	0	3	3	4	23	0	0	33
Sikkim	1	0	0	0	0	0	0	0	1
Tamilnadu	0	0	1	0	0	1	0	0	2
Telangana	0	0	2	0	0	0	0	0	2
Uttar Pradesh	28	5	84	14	4	18	0	11	164
Uttarakhand	1	0	4	0	0	2	0	0	7
West Bengal	0	0	1	0	0	0	0	0	1
State Unknown	156	38	184	32	15	33	1588	85	2131
Total	**676**	**166**	**1230**	**256**	**244**	**344**	**1590**	**214**	**4720**

Among the category of total crashes caused by Delhi registered vehicles, maximum crashes were committed by private cars (775 viz. 40.2 %), followed by scooters/ motorcycles (461 viz. 23.9 %). In all, 115 ‘self-hit crashes’ were caused by Delhi registered vehicles.

Vehicles with registration state not-known killed 336 pedestrians, which accounted for 67.6 percent of all pedestrians killed in 2021.

Vehicles registered in Delhi and Haryana were involved in the fatal crashes of about 22.5 percent and 6.0 percent pedestrians respectively.

54.7 percent two-wheeler riders were victims of fatal crashes by vehicles whose registration state could not be traced; 26.1 percent and 13.9 percent fatal crashes caused by the vehicles registered in Delhi, and in Haryana respectively.

Similar trends as described above were observed in case of total crashes caused in Delhi by vehicles registered in different states.

In case of crashes by vehicles registered in Haryana, 52.0 percent victims of fatal crashes were two-wheeler riders and 24.4 percent were pedestrians.

The percent share of two-wheeler victims is more than the percent share of pedestrian victims, only in case of crashes by vehicles registered in Delhi and Haryana state.

Most victims of the crashes caused by the vehicles registered in Delhi were scooter/motorcyclists (120 i.e. 33.1 %) followed by pedestrians (112 i.e. 30.9 %). Vehicles registered in Delhi were involved in 63 'self-hit' fatal crashes.

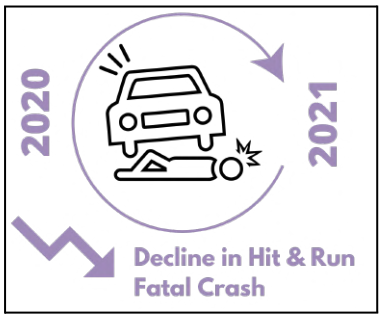
TABLE 4.7: STATE-WISE VICTIMS (FATAL CRASHES)

State	Victims									
	Cyclists	E-rickshaws	Two-Wheelers	Pedestrians	Passengers	Self	TSR	Car/Taxi	Others	Total
Bihar	0	0	1	0	0	0	0	0	0	1
Delhi	23	6	120	112	3	63	7	17	11	362
Gujarat	0	0	0	0	0	1	0	0	0	1
Haryana	8	0	64	30	0	6	4	3	8	123
Himachal Pradesh	0	0	0	1	0	0	1	0	0	2
Jharkhand	0	0	0	0	0	0	0	1	0	1
Madhya Pradesh	0	0	1	0	0	0	0	0	1	2
Nagaland	0	0	3	0	0	0	0	0	0	3
Punjab	0	0	2	2	0	0	0	1	0	5
Rajasthan	0	0	6	2	0	0	0	1	2	11
Tamilnadu	3	0	0	1	0	0	0	0	0	1
Uttar Pradesh	2	0	10	12	0	5	1	0	1	32
Uttarakhand	0	0	1	1	0	0	0	0	0	2
State Unknown	17	1	251	336	0	11	16	17	11	660
Total	45	7	459	497	3	86	29	40	34	1206

TABLE 4.8: STATE-WISE VICTIMS (TOTAL CRASHES)

State	Victims										
	Cyclists / Cycle ricksha ws	E-Ri cksh aws	Two-Whe elers	Ped estri ans	Passeng ers	Self	TSR	Car/ Taxi	Buses	Others	Total
Bihar	0	0	1	0	0	0	0	0	0	0	1
Chandigarh	0	0	1	1	0	0	1	1	0	0	5
Delhi	87	44	766	679	13	115	76	90	2	55	1927
Gujarat	0	0	1	0	0	1	0	0	0	0	2
Haryana	25	1	190	101	1	9	15	28	1	27	398
Himachal Pradesh	1	0	2	2	0	0	1	0	0	0	6
Jammu And Kashmir	0	0	0	1	0	0	0	0	0	0	1
Jharkhand	0	0	0	0	0	0	0	1	0	0	1
Karnataka	0	0	0	1	0	0	0	0	0	0	1
Kerala	0	0	0	1	0	0	0	0	0	0	1
Madhya Pradesh	1	0	4	0	0	0	0	0	0	1	6
Maharashtra	0	0	3	3	0	0	0	0	0	0	6
Nagaland	0	0	5	2	0	0	0	1	0	1	9
Punjab	0	0	7	5	0	0	0	2	0	1	15
Rajasthan	1	0	14	9	0	0	0	2	0	7	33
Sikkim	0	0	0	1	0	0	0	0	0	0	1
Tamilnadu	0	0	0	2	0	0	0	0	0	0	2
Telangana	0	0	1	1	0	0	0	0	0	0	2
Uttar Pradesh	9	3	62	57	0	10	9	8	1	5	164
Uttarakhand	0	0	4	3	0	0	0	0	0	0	7
West Bengal	0	0	0	0	0	0	0	1	0	0	1
State Unknown	59	14	876	1029	1	28	48	51	1	24	2131
Total	184	62	1937	1898	15	163	150	185	5	121	4720

HIT AND RUN CRASHES



Hit and run fatal crash cases have shown a decreasing trend in 2021 as compared to last year i.e. 2020 (579 in 2020 to 555 in 2021). About 50 percent of all the fatal crash cases come under this category. The reverse trend is seen in case of simple crashes i.e., an increase from 862 in 2020 to 1035 in 2021 (29.5 %). Lack of proper identification of vehicles viz. a faulty/smeared number plate is mainly responsible for fleeing offenders. Passers-by witnessing the crash also refrain from reporting the matter to police. Lack of surveillance cameras at the crash spot is another important reason.

5

CRASHES BY MONTH, DAY & TIME

A comparative analysis of the temporal trends of crashes, viz hour-wise, day-wise, and month-wise reveal the following important /significant trends.

Fatal crashes in 2021 have increased in comparison to 2020. Crashes on each day increased in 2021 in comparison to 2020 except on Tuesday. Fatal crashes were minimum on Tuesday (152) in 2021 and on Wednesday (155) in 2020.

TABLE 5.1: CRASHES BY DAYS OF THE WEEK

Type Of Crash	Sunday		Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Total	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
Fatal	182	191	161	180	170	152	155	161	155	167	175	176	165	179	1163	1206
Non-Fatal	418	467	444	497	425	563	434	457	427	529	432	510	435	491	3015	3514
Total	600	658	605	677	595	715	589	618	582	696	607	686	600	670	4178	4720

FIGURE 5.1: FATAL CRASHES BY DAY OF THE WEEK

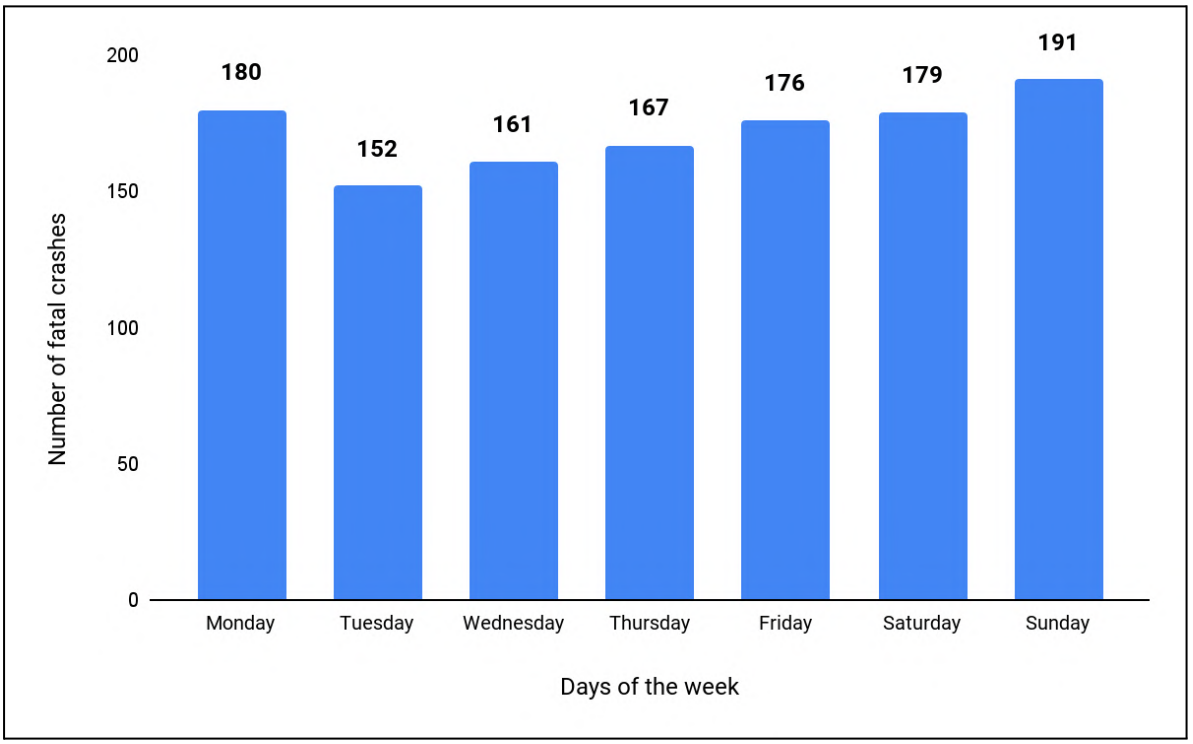
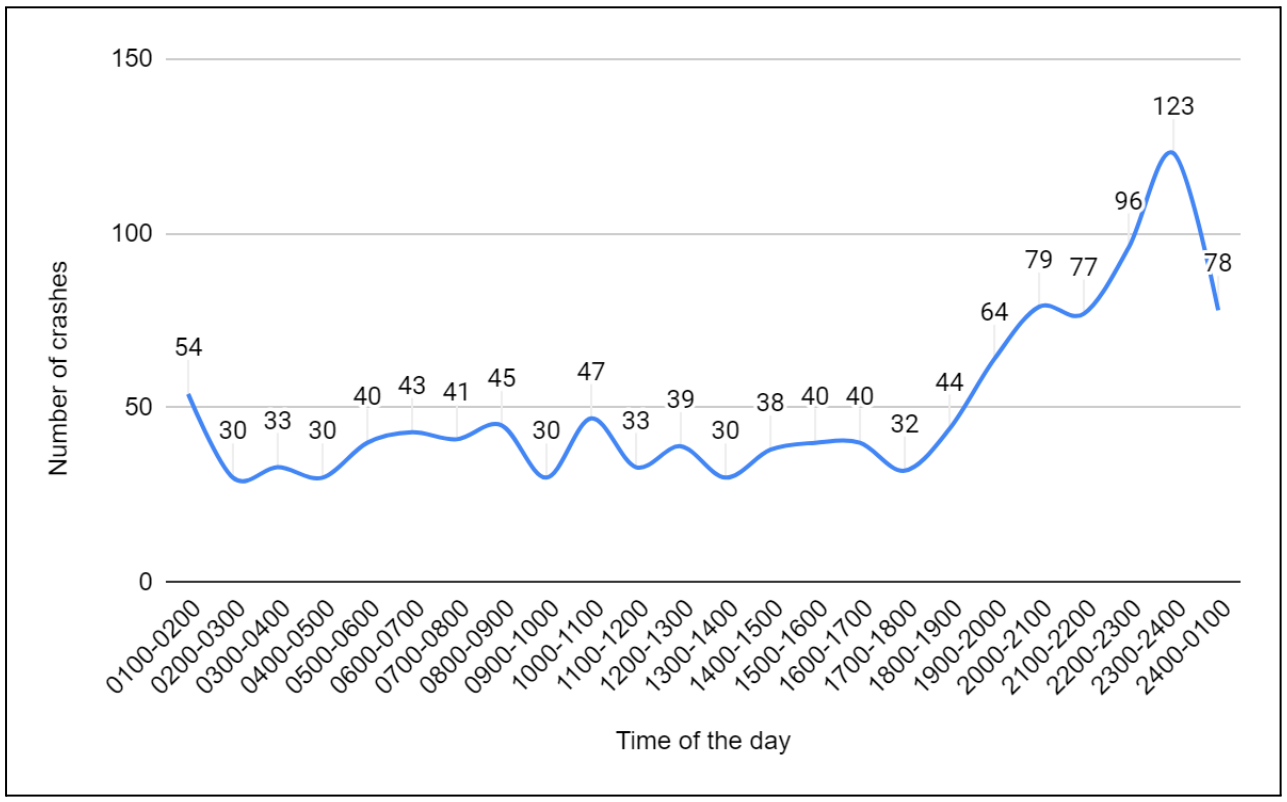


FIGURE 5.2: FATAL CRASHES BY TIME



Thereafter, crashes started decreasing gradually from 0200 hours till 0600 hrs (40). The trend continued to remain low till 1800 hrs (32). From 1000 hrs. to 1800 hrs., it remained low with some variations and again started increasing after 1800 hrs. The same trend persisted in 2020 also with marginal variations.

The reason for the maximum fatal crashes between 1900 hrs to 0200 hrs is that, during this period, the time restrictions of no-entry on commercial vehicles are lifted.

It also overlaps with the evening peak hours of traffic. There is a sudden surge in different categories of vehicles on the roads which creates the conditions for collisions, knock downs, etc.

Poor light conditions on various roads and streets also contribute to making them unsafe and prone to more crashes.

Drink-driving is another big factor in causing more crashes.

Owing to reduction in the movement of pedestrians, slow moving vehicles, non-commercial traffic, commercial traffic the number of crashes after 0100 hrs also decreases.

In 2021, maximum fatal crashes occurred in March (122), August (118) and January (114) while least occurred in May (69), April (78) and February (88).

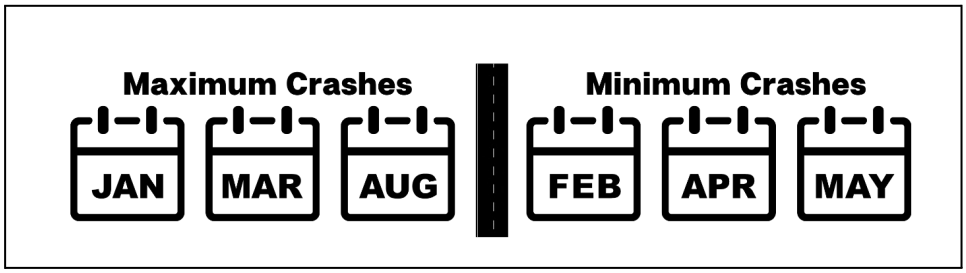


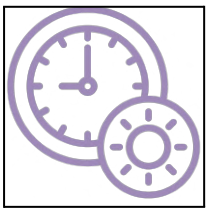
TABLE 5.2: CRASHES BY MONTH

Month	Fatal		Injury		Non-Injury		TOTAL	
	2020	2021	2020	2021	2020	2021	2020	2021
January	134	114	337	271	2	3	473	388
February	103	88	298	278	1	3	402	369
March	99	122	290	357	1	3	390	482
April	26	78	65	217	1	2	92	297
May	53	69	121	163	1	3	175	235
June	95	97	165	251	2	3	262	351
July	118	101	227	277	2	2	347	380
August	101	118	283	304	2	3	386	425
September	107	108	301	316	1	2	409	426
October	129	106	325	320	2	3	456	429
November	97	109	281	337	1	3	379	449
December	101	96	304	389	2	4	407	489
Total	1163	1206	2997	3480	18	34	4178	4720

TABLE 5.3: CRASHES BY DAY AND NIGHT

Year	Fatal		Injury		Non-Injury		Total	
	Day	Night	Day	Night	Day	Night	Day	Night
2017	720	845	3056	1961	46	45	3822	2851
2018	743	914	2823	1960	35	40	3601	2914
2019	656	777	2474	1651	23	29	3153	2457
2020	551	612	1851	1146	8	10	2410	1768
2021	561	645	2098	1382	14	20	2673	2047

Day Hours:8am To 9pm; Night Hours:9 pm To 8am.



Crash classifications according to day and night shows that in 2021, 561 fatal crashes occurred during the day time whereas 645 occurred during the night time. In 2020, there were 551 fatal crashes during the day time and 612 during the night time. Fatal crashes in day time were uniformly higher than those in night time in all the years from 2002 to 2011. Since 2012, the number of fatal crashes recorded during day were less than during night. This shows direct correlation between visible and effective police presence during the day, and may also reflect higher speeds at night when there is less congestion. In case of simple crashes, the day time figures are higher than the night time figures.

Analysis of time vis-a-vis victims of fatal crashes indicates pedestrians were mainly victims of fatal crashes from 1900–0100 hrs.

Time between 2000-0200 hrs is the most vulnerable for occurrence of crashes involving motorized two-wheelers. Most single vehicle crashes occurred during 2100-0200 hrs and 1000-1100hrs. In the case of cyclists, the most vulnerable time was 2000- 2100 and 0600-0900 hrs.

In 2021, in 555 (46.01%) registration numbers of vehicles at fault were unknown (hit and run cases), as against 579 (49.78%) in 2020. The crashes by 'unknown vehicles' have been recorded at all hours, though

the number is higher during the period 2000 – 0100 hrs. The high rate of hit and run crashes indicates non-reporting of accused vehicles, and the apathy of general public/eye witnesses to report the crashes.

TABLE 5.4: CRASHES CLASSIFIED ACCORDING TO THE TIME OF OCCURRENCE

Time	Simple Crash			Fatal Crash		
	2019	2020	2021	2019	2020	2021
0000-0100	188	122	132	116	89	78
0100-0200	134	82	100	70	53	54
0200-0300	94	42	62	39	38	30
0300-0400	70	39	61	46	20	33
0400-0500	69	34	45	55	32	30
0500-0600	92	66	84	56	30	40
0600-0700	126	72	101	58	45	43
0700-0800	159	87	116	48	39	41
0800-0900	162	115	140	54	42	45
0900-1000	178	132	139	45	36	30
1000-1100	180	163	171	52	33	47
1100-1200	153	125	164	49	38	33
1200-1300	181	114	134	43	43	39
1300-1400	192	124	132	45	29	30
1400-1500	217	111	150	38	41	38
1500-1600	178	136	139	48	41	40
1600-1700	194	134	159	46	48	40
1700-1800	184	169	152	56	36	32
1800-1900	204	186	190	52	38	44
1900-2000	246	166	197	58	51	64
2000-2100	228	184	245	70	75	79
2100-2200	274	252	256	90	79	77
2200-2300	246	207	248	107	96	96
2300-2400	228	153	197	92	91	123
Total	4177	3015	3514	1433	1163	1206

TABLE 5.5: TIME-WISE VICTIM (FATAL CRASHES)

Time	Victims										
	Cyclists	Cycle Rickshaws	E-Rickshaws	Two-Wheelers	TSR	Car/ Taxi	Pedestrians	Self	Bus Passengers	Other	Total
0000-0100	0	0	0	31	2	3	29	8	1	4	78
0100-0200	2	0	0	19	3	6	12	8	0	4	54
0200-0300	0	0	0	12	0	0	15	2	0	1	30
0300-0400	0	0	0	13	1	0	11	5	0	3	33
0400-0500	0	0	0	6	2	1	15	4	0	2	30
0500-0600	2	0	0	15	1	3	16	2	0	1	40
0600-0700	4	2	1	11	2	2	14	2	1	4	43
0700-0800	4	0	1	12	2	1	18	2	0	1	41
0800-0900	3	1	1	12	2	3	21	2	0	0	45
0900-1000	0	0	0	13	1	0	16	0	0	0	30
1000-1100	2	0	0	20	1	0	18	5	0	1	47
1100-1200	2	0	0	12	0	0	19	0	0	0	33
1200-1300	2	0	0	16	2	1	14	3	0	1	39
1300-1400	1	0	0	13	1	0	11	1	1	2	30
1400-1500	0	0	0	18	0	0	18	2	0	0	38
1500-1600	1	1	0	16	2	0	12	6	0	2	40
1600-1700	4	0	0	13	1	1	20	0	0	1	40
1700-1800	2	1	1	10	0	2	14	2	0	0	32
1800-1900	2	0	0	15	0	2	23	2	0	0	44
1900-2000	1	0	1	19	1	2	35	5	0	0	64
2000-2100	5	1	0	26	1	0	39	7	0	0	79
2100-2200	2	0	1	34	0	3	30	4	0	3	77
2200-2300	4	0	1	44	1	5	31	8	0	2	96
2300-2400	2	0	0	59	3	5	46	6	0	2	123
Total	**45**	**6**	**7**	**459**	**29**	**40**	**497**	**86**	**3**	**34**	**1206**

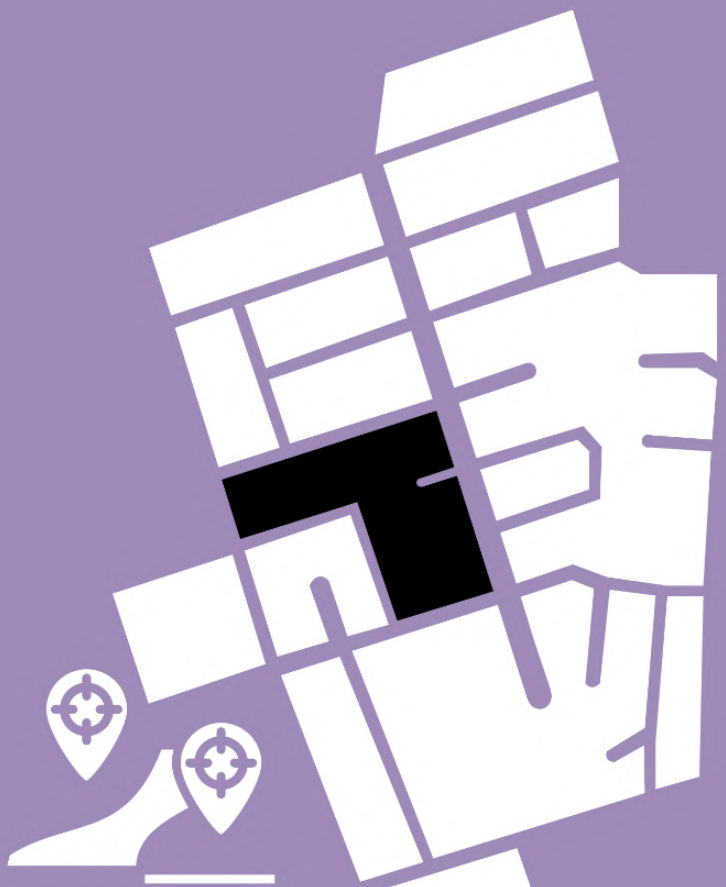
TABLE 5.6: TIME-WISE VEHICLE AT FAULT (FATAL CRASHES)

Time	At-Fault Vehicles								
	Bus	TSR	Two-Wheelers	Car/ Taxi	LGV	HTV	Unknown Vehicle	Other	Total
0000-0100	2	0	5	7	4	15	41	4	78
0100-0200	0	0	6	10	4	11	21	2	54
0200-0300	0	0	2	5	1	5	17	0	30
0300-0400	0	0	3	6	2	8	13	1	33
0400-0500	0	0	5	4	2	1	18	0	30
0500-0600	1	1	4	6	0	7	19	2	40
0600-0700	2	1	3	8	5	5	19	0	43
0700-0800	7	0	1	11	4	7	8	3	41
0800-0900	2	5	2	8	0	4	21	3	45
0900-1000	8	0	4	2	0	1	12	3	30
1000-1100	3	1	6	5	7	4	17	4	47
1100-1200	1	0	4	7	3	2	13	3	33
1200-1300	3	1	4	6	2	8	13	2	39
1300-1400	3	2	1	3	2	2	13	4	30
1400-1500	1	2	1	6	4	8	14	2	38
1500-1600	3	1	3	4	4	5	17	3	40
1600-1700	2	1	1	11	3	3	16	3	40
1700-1800	3	1	3	5	5	3	10	2	32
1800-1900	5	2	4	6	1	5	20	1	44
1900-2000	2	2	8	7	2	3	37	3	64
2000-2100	5	0	13	9	1	7	40	4	79
2100-2200	4	0	8	12	3	8	39	3	77
2200-2300	8	3	13	13	5	9	44	1	96
2300-2400	1	0	10	15	8	14	73	2	123
Total	**66**	**23**	**114**	**176**	**72**	**145**	**555**	**55**	**1206**

HTVs committed fatal crashes at all hours. However, crashes were highest between 2100 and 0200 hrs. Cars were involved in fatal crashes at all hours of the day and higher during the night time. Cars caused maximum crashes during 2100- 0200 hrs.

6

DISTRIBUTION OF CRASHES BY LOCATION



The spatial trends of crashes are uneven. Fatal crashes are more likely in areas where there is a mix of vulnerable road users and heavy and high-speed vehicles.

In Delhi, the density of crashes (number of crashes per unit area) was high in central and eastern parts of Delhi. Density of fatal crashes were maximum in Shahdara, Paharganj, Kotwali and Daryaganj Circles, while total crashes were more in Seemapuri, Shahdara, Kotwali and Paharganj.

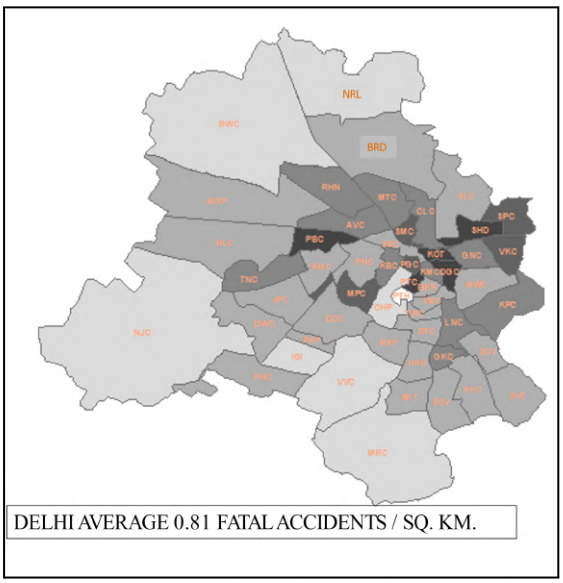
In terms of total road crashes in 2021, West Distt. (648) was the highest crash prone district of all Delhi districts followed by North-West Distt. (580)**,** South East Distt. (533) and Outer District (488). In 2020 also, West Distt. (609) remained the highest crash prone district followed by North-West (544), Outer Districts (494) and South East (454). On the other hand, New Delhi District (136) and Central District (200) registered the lowest road crashes in Delhi during 2021.

Burari (263), Mangolpuri (201), Dwarka (177), Nangloi (176), Kalyanpuri (164) Najafgarh (162) and Seemapuri (160) circles had recorded the highest number of total crashes in Delhi in 2021.

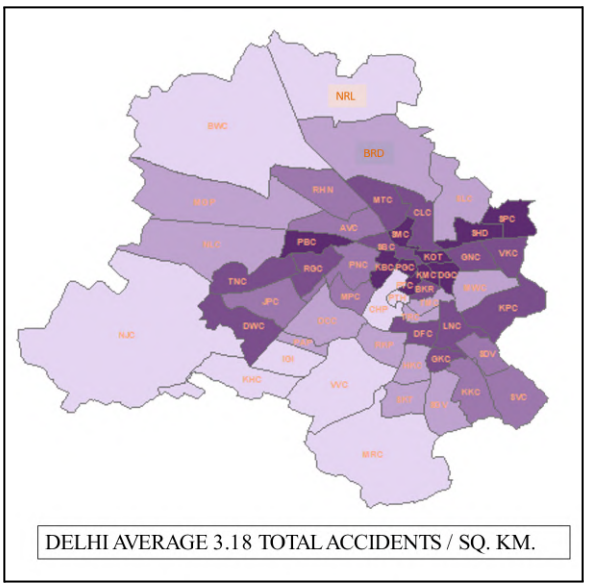
In fatal crashes**,** the most crash prone districts were West (187), North-West (180), Outer (143), South-West Distt (119) and South-East (105) in 2021, as compared to North-West (194), West (178), Outer (156) and South-East (108) Districts in 2020 (Table 6.1).

Burari (80), Najafgarh (58), Bawana (52), Mangolpuri (49) and Nangloi (49) circles recorded the highest number of fatal crashes in 2021.

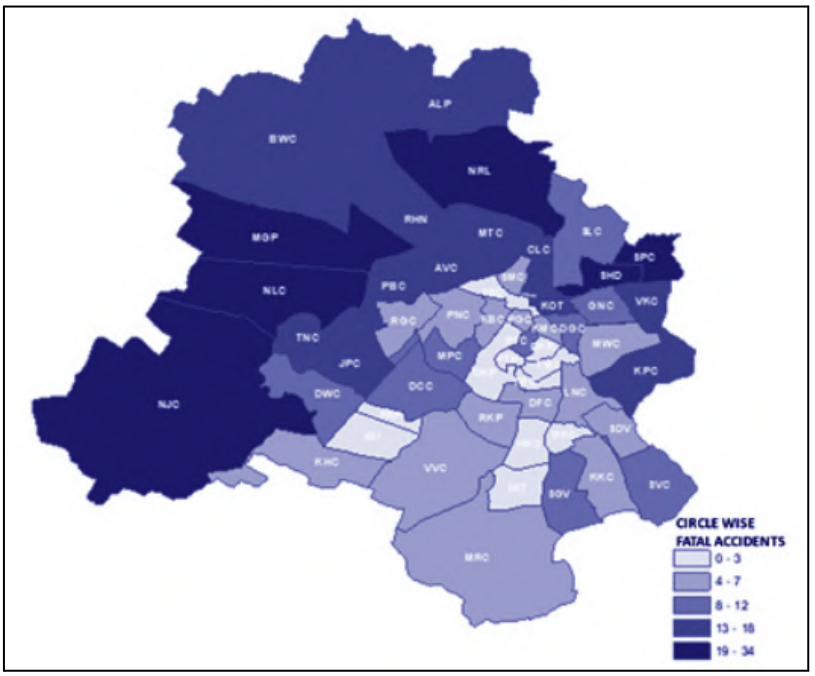
MAP 6.1: DENSITY OF FATAL CRASHES



MAP 6.2: DENSITY OF TOTAL CRASHES

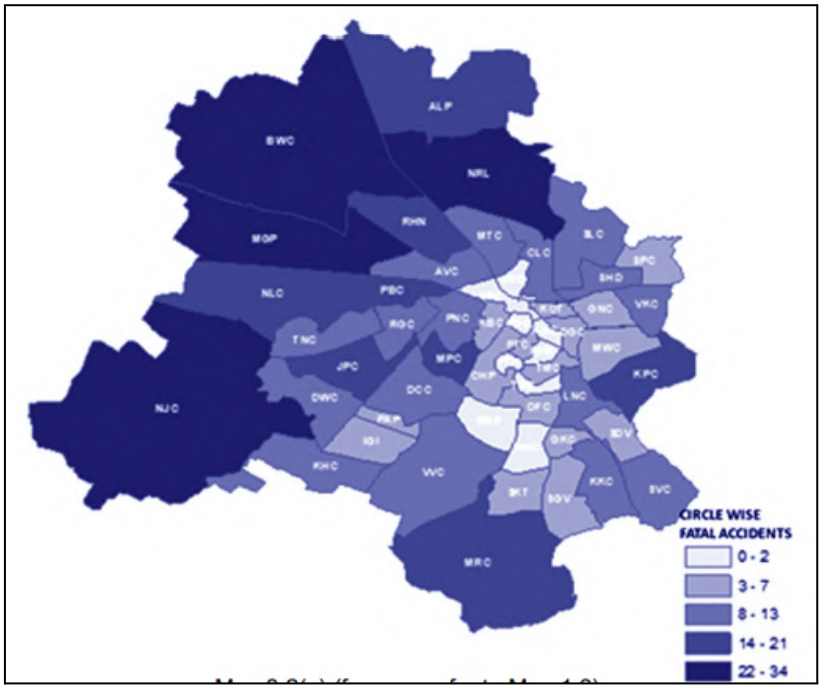


MAP 6.3: CIRCLE-WISE DISTRIBUTION OF PEDESTRIAN FATAL CRASHES



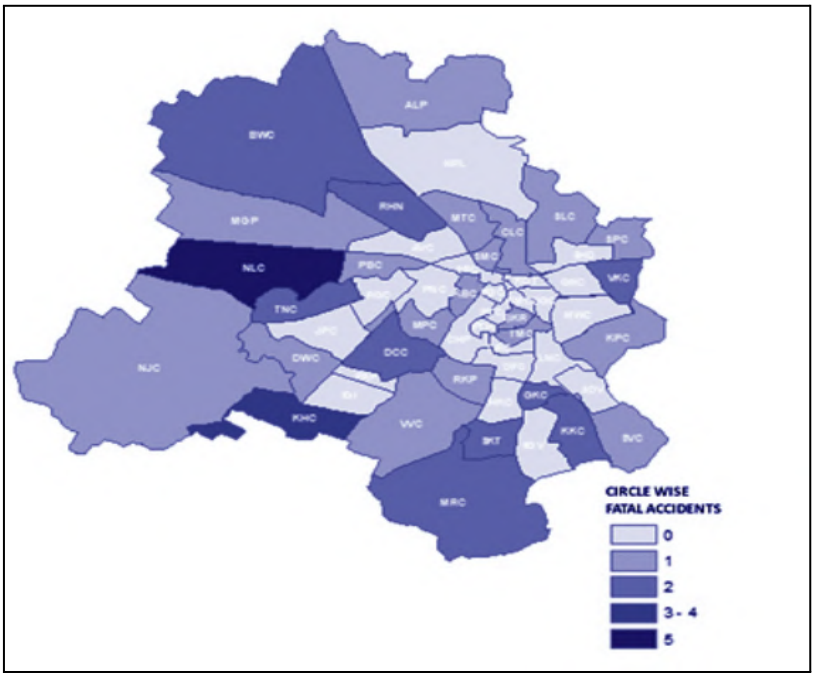
Maximum pedestrian fatalities were reported in West, Outer and North-west regions of Delhi.

MAP 6.4: CIRCLE-WISE DISTRIBUTION OF MOTORCYCLIST FATAL CRASHES



Vulnerability of two-wheeler victims is more in Burari, Bawana, Mangolpuri and Najafgarh circles. The total number of crashes of two wheelers are higher in Burari, Mangolpuri, Najafgarh, Dwarka and Kalyanpuri circles.

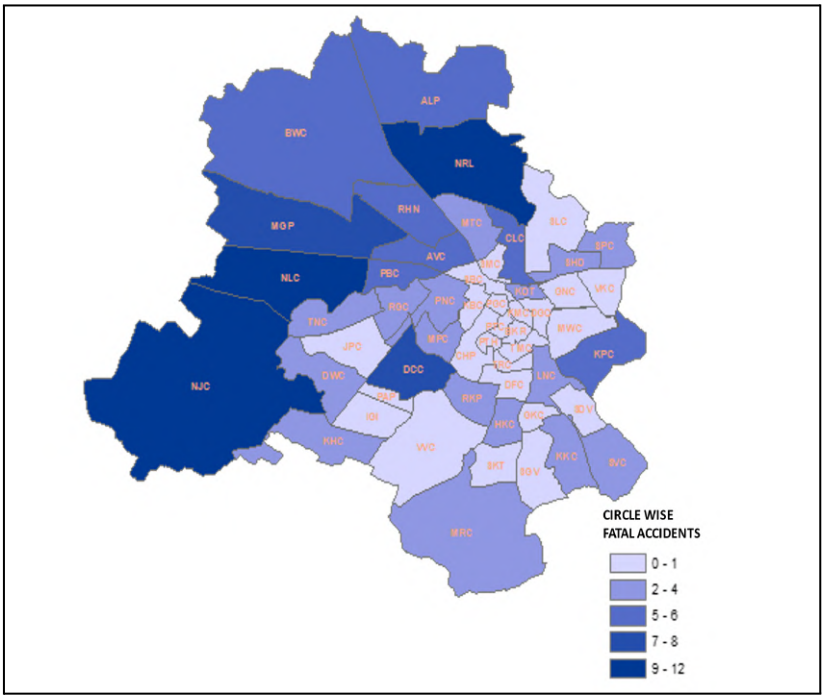
MAP 6.5: CIRCLE-WISE DISTRIBUTION OF CYCLIST FATAL CRASHES



Cyclists are more vulnerable in Nangloi, Kapashera, Kalkaji, and Mehrauli circles.

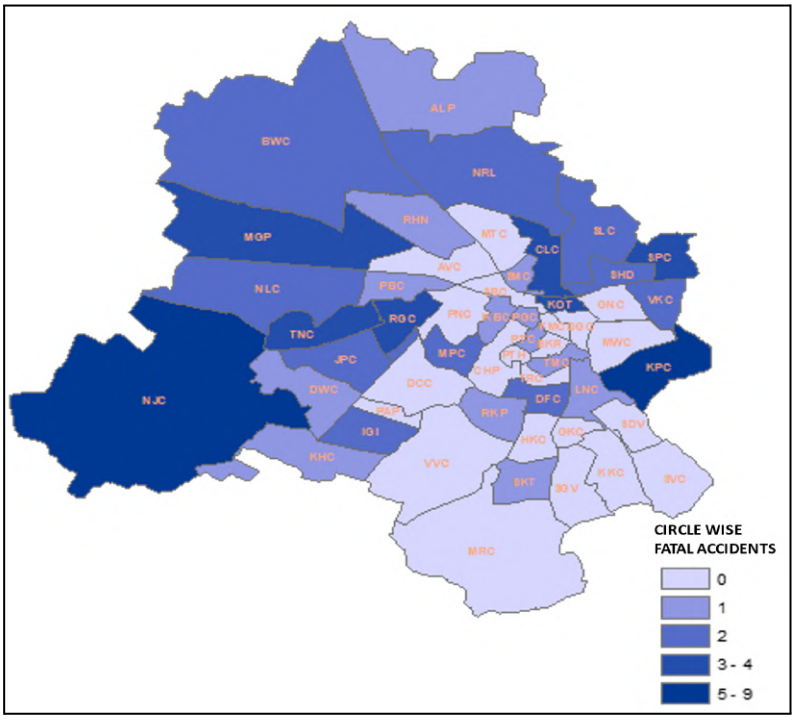
FATAL CRASH LOCATIONS BY AT-FAULT VEHICLE

MAP 6.6: CIRCLE-WISE DISTRIBUTION OF FATAL CRASHES CAUSED BY HTVs



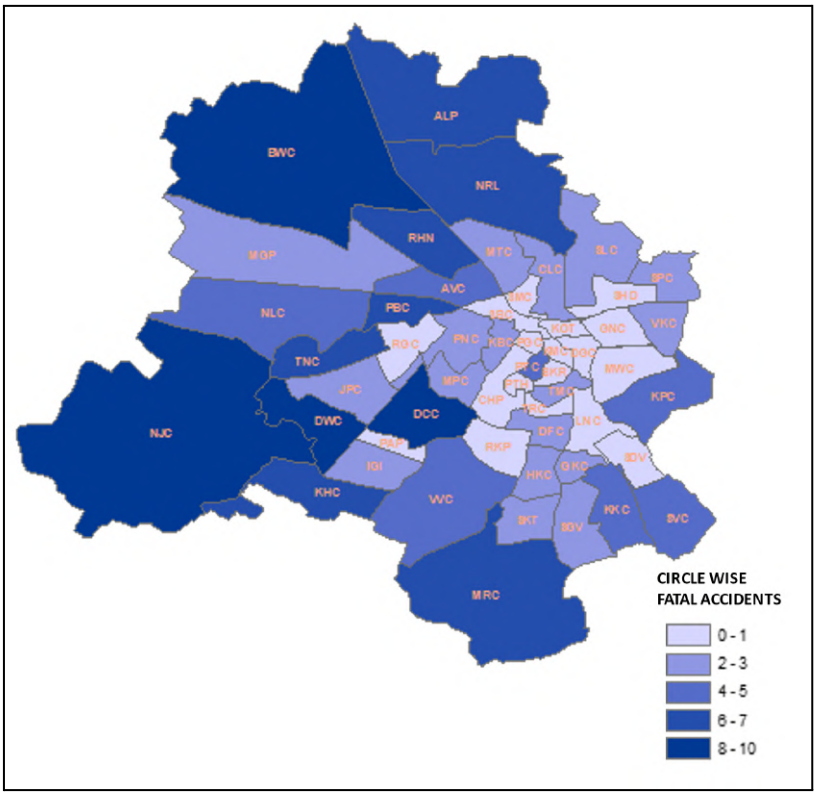
Maximum fatal crashes caused by trucks occurred in Burari, Nangloi, Najafgarh, Delhi Cantt and Mangolpuri circles.

MAP 6.7: CIRCLE-WISE DISTRIBUTION OF FATAL CRASHES CAUSED BY BUSES



Maximum fatal crashes caused by buses occurred in Najafgarh, Kalyanpuri, Seemapuri, Mangolpuri, Tilak Nagar and Rajouri garden circles.

MAP 6.8: CIRCLE-WISE DISTRIBUTION OF FATAL CRASHES CAUSED BY CARS



Maximum fatal crashes caused by cars occurred in Najafgarh, Bawana, Dwarka, Delhi Cantt and Mehrauli circles.

TABLE 6.1: TYPES OF CRASHES BY TRAFFIC DISTRICTS

Traffic Districts	Fatal Crashes			Injury Crashes			Non-Injury Crashes			Total Crashes		
	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Central	50	36	40	136	105	158	2	0	2	188	141	200
Dwarka	69	59	67	240	218	245	6	2	6	315	279	318
New Delhi	43	28	37	128	89	97	8	3	2	179	120	136
East	132	81	97	293	256	286	8	1	4	433	338	387
North East	113	72	84	372	209	322	2	1	1	487	282	407
North-West	211	194	180	528	346	399	2	4	1	741	544	580
North	123	64	64	266	174	202	1	0	1	390	238	267
Outer	146	156	143	453	336	342	4	2	3	603	494	488
South	109	89	83	393	275	307	9	1	4	511	365	394
South-East	155	108	105	476	343	422	4	3	6	635	454	533
South-West	106	98	119	280	216	242	0	0	1	386	314	362
West	176	178	187	560	430	458	6	1	3	742	609	648
Total	1433	1163	1206	4125	2997	3480	52	18	34	5610	4178	4720

TABLE 6.2: TYPES OF CRASHES BY TRAFFIC CIRCLES

Traffic Circle	Fatal Crashes			Injury Crashes			Non-Injury Crashes			Total		
	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Ashok Vihar	40	33	32	136	69	62	0	1	0	176	103	94
Barakhamba Road	3	2	4	23	9	18	4	1	0	30	12	22
Burari	93	80	80	188	137	183	1	3	0	282	220	263
Bawana	56	55	52	110	70	88	0	0	0	166	125	140
Chanakya Puri	11	6	6	29	16	16	0	0	1	40	22	23
Civil Lines	54	28	29	99	65	72	0	0	0	153	93	101
Delhi Cantt.	25	19	29	68	68	59	3	0	5	96	87	93
Darya Ganj	22	14	16	43	30	53	1	0	0	66	44	69
Defence Colony	20	18	9	83	61	53	3	1	1	106	80	63
Dwarka	36	24	27	138	113	149	3	2	1	177	139	177
Gandhi Nagar	13	16	17	37	28	49	3	0	2	53	44	68
Greater Kailash	16	14	11	51	31	32	0	0	1	67	45	44
Hauz Khas	8	5	7	32	44	34	1	0	0	41	49	41
I G I Airport	1	8	6	23	21	19	0	0	0	24	29	25
Janak Puri	31	31	31	94	60	77	0	0	1	125	91	109
Karol Bagh	11	13	13	51	39	51	0	0	2	62	52	66
Kalkaji	38	35	22	79	54	91	0	1	3	117	90	116
Kotwali	26	15	19	61	37	46	1	0	1	88	52	66
Kamla Market	6	3	5	16	7	26	1	0	0	23	10	31

Kalyan Puri	57	33	43	99	91	121	2	0	0	158	124	164
Kapashera	29	23	25	66	37	50	0	0	0	95	60	75
Lajpat Nagar	33	20	20	73	67	68	1	1	2	107	88	90
Mehrauli	21	17	27	77	55	57	0	0	0	98	72	84
Model Town	41	40	29	109	91	94	1	0	0	151	131	123
Maya Puri	19	29	27	55	39	47	3	0	1	77	68	75
Mandawali	31	14	11	81	73	64	3	0	0	115	88	75
Mangol Puri	58	67	49	188	163	152	1	1	0	247	231	201
Najafgarh	50	44	58	106	106	104	0	1	0	156	150	162
Nangloi	59	51	49	160	108	127	1	1	0	220	160	176
Narela	37	41	39	95	49	60	0	0	1	132	90	100
Palam Airport	7	8	5	11	16	18	0	0	0	18	24	23
Punjabi Bagh	24	24	40	119	82	74	2	0	1	145	106	115
Pahar Ganj	11	6	6	26	29	28	0	0	0	37	35	34
Pt. Street	13	13	15	40	32	32	3	1	0	56	46	47
Pt. House	0	0	0	1	2	6	0	1	0	1	3	6
Patel Nagar	19	17	19	66	60	66	0	0	0	85	77	85
R.K. Puram	18	10	11	74	29	53	4	0	0	96	39	64
Rajouri Garden	24	26	21	66	81	67	0	0	0	90	107	88
Rohini	32	34	42	155	103	102	3	1	3	190	138	147
Sadar Bazar	23	8	5	66	32	39	0	0	0	89	40	44
Shahdara	31	15	29	121	65	96	0	0	0	152	80	125
Subzi Mandi	20	13	11	40	40	45	0	0	0	60	53	56
Sarita Vihar	40	19	28	122	113	116	2	0	0	164	132	144
Saket	10	13	12	36	33	39	0	0	1	46	46	52
Sangam Vihar	19	11	15	92	45	66	1	0	0	112	56	81
Seema Puri	52	32	33	119	65	126	2	0	1	173	97	160
Khajoori	30	25	22	132	79	100	0	1	0	162	105	122
Sukhdev Vihar	9	9	9	59	33	49	0	1	0	68	43	58
Tilak Nagar	27	31	36	108	73	88	0	0	1	135	104	125
Tilak Marg	10	4	8	25	20	12	0	0	1	35	24	21
Tughlak Road	6	3	4	10	10	13	1	0	0	17	13	17
Vivek Vihar	31	18	26	76	64	52	0	0	2	107	82	80
Vasant Vihar	32	26	17	91	53	71	1	0	2	124	79	90

TABLE 6.3: TYPES OF CRASHES BY TRAFFIC RANGES

Name Of Traffic Range	Non Injury		Simple		Fatal		Total		Persons Injured		Persons Killed	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
Central Range	0	3	279	360	100	104	379	467	337	431	100	111
New Delhi Range	5	8	307	342	87	104	399	454	375	406	88	106
Eastern Range	2	5	465	608	153	181	620	794	548	749	160	185
Outer Range (now Northern Range)	6	4	682	741	350	323	1038	1068	846	939	358	327
Southern Range	4	10	618	729	197	188	819	927	777	892	202	192
Western Range	1	4	646	700	276	306	923	1010	779	856	288	318
Total	18	34	2997	3480	1163	1206	4178	4720	3662	4273	1196	1239

Outer Range- Traffic (now Northern Range) recorded the highest number of fatal crashes (323 out of 1206) in 2021.

TOP 10 CRASH PRONE ROADS

The top 10 crash prone roads (total crashes) were Outer Ring Road (280), Ring Road (280), Rohtak Road (136), GTK Road (134), Najafgarh Road (107), Wazirabad Road (101**),** NH-8 (85), Mathura Road (80) Grand Trunk Road (78) and Mehrauli Badarpur Road (72).

TABLE 6.4: TOP 10 FATAL CRASH PRONE ROADS

S. no.	Fatal Crash Prone Roads	Deaths
1.	Outer Ring Road	95
2.	Ring Road	85
3.	Rohtak Road	46
4.	GTK Road	44
5.	Najafgarh Road	28
6.	NH-8	26
7.	Wazirabad Road	21
8.	Grand Trunk Road	21
9.	Bawana Road	19
10.	NH-24	15

It is observed that the Outer Ring Road (Northern Stretch) had the highest number of crashes. Ring Road, the stretch between Azadpur to Dhaula Kuan and Dhaula Kuan to IP Depot is the most crash prone.

TABLE 6.5: CRASHES CLASSIFIED ACCORDING TO PLACE OF OCCURRENCE (ROADS)

S.No.	Road Name	Fatal Crashes			Injury Crashes			Non-Injury Crashes			Total Crashes		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
1.	Africa Avenue	0	0	0	5	3	5	0	0	0	5	3	5
2.	Alipur Road	0	0	0	1	2	2	0	0	0	1	2	2
3.	Anand Mai Marg	10	8	5	19	12	15	0	0	2	29	20	22
4.	Aruna Asaf Ali Marg	2	1	1	13	3	7	1	0	0	16	4	8
5.	Asaf Ali Road	1	1	1	2	1	3	0	0	0	3	2	4
6.	August Kranti Marg	0	0	0	0	1	4	0	0	0	0	1	4
7.	Aurobindo Marg	10	6	3	17	19	15	1	0	0	28	25	18
8.	Bahadur Shah Zr Marg	3	2	1	2	2	7	1	0	0	6	4	8
9.	Bawana Road	12	14	19	22	17	28	0	0	0	34	31	47
10.	Bhati Mine Marg	2	0	0	7	7	1	0	0	0	9	7	1
11.	Boulevard Road	10	2	2	14	7	14	0	0	0	24	9	16
12.	Captain Gaur Marg	0	1	1	4	1	3	0	0	0	4	2	4
13.	Chhatarpur Road	1	0	1	4	3	0	0	0	0	5	3	1
14.	Dhansa Road	5	5	8	14	3	8	0	0	0	19	8	16
15.	Desh Bandhu Gupta Rd	7	2	3	11	12	11	0	0	1	18	14	15
16.	Dr. Ambedkar Road	2	0	2	4	2	2	0	0	0	6	2	4
17.	DSIDC Narela Road	2	2	0	4	0	1	0	0	0	6	2	1
18.	Dwarka Road		0			0		0	0		0	0	
19.	Faiz Road	2	2	0	1	1	1	0	0	0	3	3	1
20.	Ghuman Hera Marg	1	0	2	1	1	2	0	0	0	2	1	4
21.	Grand Trunk Road	27	14	21	65	40	57	1	0	0	93	54	78
22.	GTK road	56	46	44	94	72	90	1	1	0	151	119	134
23.	Gurgaon Road	2	0	0	0	0	1	0	0	0	2	0	1
24.	ISBT Road	0	0		1	0		0	0		1	0	
25.	JawaharLal Nehru Rd	5	4	1	11	1	14	0	0	0	16	5	15
26.	Jharoda Road	2	5	7	5	5	1	0	0	0	7	10	8
27.	Kanjhawala Road	2	10	6	9	23	25	0	0	0	11	33	31
28.	Lala Lajpat Rai Path	8	5	2	20	15	24	0	0	0	28	20	26
29.	Loni Road	3	4	2	10	3	11	0	0	0	13	7	13
30.	Mahipal Pur Road	8	8	3	24	14	11	0	0	0	32	22	14
31.	Mandoli Road	1	1	0	4	1	5	0	0	0	5	2	5
32.	Mathura Road	38	15	14	79	60	66	3	0	0	120	75	80
33.	Mayapuri Marg	1	2	4	2	1	4	0	0	1	3	3	9
34.	Mehrauli Badarpur Road	16	18	18	48	38	54	0	1	0	64	57	72
35.	Mehrauli Gurgaon Rd	5	2	11	20	10	12	0	0	0	25	12	23
36.	Najafgarh Road	30	20	28	99	84	78	0	0	1	129	104	107
37.	Najafgarh Nangloi Road	7	7	10	29	21	28	0	0	0	36	28	38
38.	Nangloi Sultanpuri Road	-	0	-	-	0	-	0	0	-	0	0	-
39.	Naraina Road		1	0		3	3	0	0	0	0	4	3
40.	Narela Road	3	6	9	18	8	12	0	0	0	21	14	21
41.	Nelson Mandela Marg	2	2	0	7	5	6	0	0	0	9	7	6
42.	New Rohtak Road	5	7	11	17	17	12	0	0	0	22	24	23
43.	NH-24	26	17	15	29	26	32	0	0	0	55	43	47
44.	NH-8	20	27	26	48	61	56	0	0	3	68	88	85
45.	Noida DND Road	5	3	4	6	6	6	0	0	0	11	9	10
46.	Old Gurgaon Road	0	1	2	2	2	3	0	0	0	2	3	5
47.	Old Rohtak Road	2	1	2	11	7	6	0	0	0	13	8	8
48.	Olof Palme Marg	1	0		0	0		0	0		1	0	
49.	Outer Circle Cp	1	0		5	3		1	1		7	4	
50.	Outer Ring Road	125	97	95	224	158	182	0	1	3	349	256	280
51.	Palam Dabri Road	1	0	0	2	1	1	0	0	0	3	1	1
52.	Palla Road	0	1	0	3	0	3	0	0	0	3	1	3
53.	Panchkuian Road	2	1	3	2	9	10	0	0	0	4	10	13
54.	Pankha Road	10	7	9	20	9	15	0	0	0	30	16	24
55.	Patel Road	3	7	4	22	23	23	0	0	0	25	30	27
56.	Patpar Ganj Road	2	2	1	8	6	8	0	0	0	10	8	9

57.	Press Enclave Marg	0	0	2	4	4	6	0	0	0	4	4	8
58.	Prithvi Raj Road	2	0	1	1	0	4	0	0	0	3	0	5
59.	Qutab Road	1	0	2	1	0	1	0	0	0	2	0	3
60.	Raja Ram Marg	4	3	2	4	3	7	0	0	1	8	6	10
61.	Rama Road	4	1	1	6	7	3	0	0	0	10	8	4
62.	Rani Jhansi Road	3	0	1	7	16	12	0	0	0	10	16	13
63.	Rao Tula Ram Marg	2	1	2	4	10	6	0	0	1	6	11	9
64.	Ravi Das Marg	2	3	1	12	3	7	0	0	0	14	6	8
65.	Ring Road	107	85	85	269	200	192	6	2	3	382	287	280
66.	Rithala Road	4	3	0	4	4	1	1	0	0	9	7	1
67.	Road No 13	2	0	0	2	0	2	0	0	0	4	0	2
68.	Road No 37	1	1	2	1	1	1	0	0	0	2	2	3
69.	Road No 40	7	2	1	24	7	4	0	0	0	31	9	5
70.	Road No 41	4	5	6	14	11	10	0	0	0	18	16	16
71.	Road No 56	17	7	9	34	23	14	0	0	0	51	30	23
72.	Road No 57	11	2	4	21	12	11	2	0	1	34	14	16
73.	Road No 66	0	0	5	10	3	9	0	0	0	10	3	14
74.	Rohtak Road	51	38	46	132	100	89	3	1	1	186	139	136
75.	Roshanara Road	2	2	0	1	2	10	0	0	0	3	4	10
76.	Shanti Path	2	0		1	2		0	0		3	2	
77.	Station Road	2	3	3	7	14	6	1	0	1	10	17	10
78.	Todapur Road(Dps Marg)	4	5	8	13	6	8	0	0	0	17	11	16
79.	Vikas Marg	12	7	5	35	20	30	0	0	1	47	27	36
80.	Viveka Nand Marg	3	0	0	7	3	1	0	0	0	10	3	1
81.	Wazirabad Road	35	23	21	79	41	80	0	0	0	114	64	101
82.	Yamuna Pushta Road	10	8	8	20	16	15	0	0	0	30	24	23
83.	Road No 13a	3	3	6	15	9	17	0	0	0	18	12	23
84.	Baba Kharak Singh Marg	4	2	6	7	3	6	0	0	0	11	5	12
85.	Bawana Auchandi Road	1	1	0	0	4	2	0	0	0	1	5	2
86.	Bijwasan Road	5	9	9	10	10	12	0	9	0	15	19	21
87.	Burari Road	9	5	5	16	20	17	0	1	0	25	26	22
88.	Chhawla Road	0	2	0	5	3	3	0	0	0	5	5	3
89.	DDU Marg	1	0	1	2	1	2	0	0	0	3	1	3
90.	Jai Singh Road		0	0		0	1	0	0	0	0	0	1
91.	Jail Road	4	1	3	8	4	7	0	0	0	12	5	10
92.	Jaitpur Road	0	1	2	2	3	9	0	0	0	2	4	11
93.	Janpath	0	1	2	8	2	4	0	0	0	8	3	6
94.	Kotla Road	2	2	3	1	1	9	0	0	0	3	3	12
95.	Lodi Road	0	2	0	7	13	6	0	0	0	7	15	6
96.	Maharaja Surajmal Road		1	0		0	1	0	0	0	0	1	1
97.	Pusa Road	2	2	1	11	4	12	0	0	0	13	6	13
98.	Pusta Road	13	10	7	57	26	29	0	0	0	70	36	36
99.	Qutab Garh Road	1	4	0	1	4	4	0	0	0	2	8	4
100.	Ramdev Marg	2	0	1	3	2	0	0	0	0	5	2	1
101.	Ridge Road	1	2	3	7	2	3	0	0	0	8	4	6
102.	Sardar Patel Marg	1	3	3	9	3	4	1	0	0	11	6	7
103.	SPM Marg	6	3	-	4	3	-	0	0	-	10	6	-

TABLE 6.6: TYPE OF CRASHES ON NATIONAL HIGHWAYS

S. No.	Road	National Highways											
		Fatal			Simple			Non-Injury			Total		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
1.	Rohtak Road (NH-10)	51	38	46	132	100	89	3	1	1	186	139	136
2.	Mathura Road NH-2	38	15	14	79	60	66	3	0	0	120	75	80
3.	NH-8	20	27	26	48	61	56	0	0	3	68	88	85
4.	NH- 24	26	17	15	29	26	32	0	0	0	55	43	47
5.	G.T.Karnal Road NH-1	56	46	44	94	72	90	1	1	0	151	119	134
6.	G.T.Road NH-58	27	14	21	65	40	57	1	0	0	93	54	78

TABLE 6.7: TYPE OF CRASHES ON RING ROAD

Ring Road													
S. No.	Road	Fatal			Simple			Non-Injury			Total		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
1	Azadpur to Dhaula Kuan	48	41	38	94	69	62	1	0	0	143	110	100
2	Dhaula Kuan to I. P. Depot	29	23	21	84	58	68	4	2	3	117	83	92
3	I.P. Depot to I. P. College	17	10	18	46	37	41	1	0	0	64	47	59
4	I. P. College to Azadpur	13	11	8	45	36	21	0	0	0	58	47	29

TABLE 6.8: TYPE OF CRASHES ON OUTER RING ROAD

Outer Ring Road												
S. No.	Road	Fatal			Simple			Non-Injury			Total		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
1	Outer Ring Road (West)	12	7	12	41	23	14	0	0	0	53	30	26
2	Outer Ring Road (North)	97	72	70	145	105	126	0	1	1	242	178	197
3	Outer Ring Road (South)	16	18	13	38	30	42	0	0	2	54	48	57

TABLE 6.9: CRASH PRONE ROADS WITH MORE THAN 10 DEATHS

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Outer Ring Road	95	280	96
2.	Ring Road	85	280	92
3.	Rohtak Road	46	136	48
4.	GTK Road	44	134	45
5.	Najafgarh Road	28	107	32
6.	NH-8	26	85	26
7.	Wazirabad Road	21	101	21
8.	Grand Trunk Road	21	78	21
9.	Bawana Road	19	47	19
10.	Mehrauli Badarpur Road	18	72	18
11.	NH-24	15	47	16
12.	Mathura Road	14	80	15
13.	201 No Road	11	48	11
14.	Mehrauli Gurgaon Road	11	23	11
15.	New Rohtak Road	11	23	11
16.	Najafgarh Nangloi Road	10	38	10

TABLE 6.10: CRASH PRONE ROADS FOR PEDESTRIANS BY TIME

S.No.	Road Name	Simple		Fatal		Total	
		Day	Night	Day	Night	Day	Night
1.	Ring Road	38	22	14	16	52	38
2.	Outer Ring Road	28	22	13	17	41	39
3.	GTK Road	23	11	10	11	33	22
4.	Rohtak Road	25	13	14	5	39	18
5.	Najafgarh Road	25	15	7	6	32	21
6.	Wazirabad Road	21	18	3	6	24	24
7.	Mathura Road	21	9	2	6	23	15
8.	Grand Trunk Road	14	11	4	4	18	15
9.	Yamuna Pusta Road	1	3	2	4	3	7
10.	Netaji Subhash Marg	6	1	2	3	8	4
11.	Baba Kharak Singh Marg		4	1	4	1	8
12.	New Rohtak Road	3	1	2	3	5	4
13.	Bawana Road	6	4	4		10	4
14.	201 No Road	4	4	3	1	7	5
15.	Pankha Road	3	4	2	2	5	6
16.	Road No 57	1	2	2	2	3	4
17.	NH-8	11	6	-	3	11	9
18.	Mehrauli Badarpur Road	6	10	-	3	6	13
19.	Pusta Road	9	4	-	3	9	7
20.	Burari Road	7	1	1	2	8	3
21.	Road No 56	3	3	3	-	6	3
22.	Road No 66	2	3	1	2	3	5
23.	Road No 41	4	1	2	1	6	2
24.	Desh Bandhu Gupta Road	2	3	2	1	4	4
25.	Mehrauli Gurgaon Road	1	3	1	2	2	5

TABLE 6.11: CRASH PRONE ROADS FOR MOTORCYCLISTS BY TIME

S.No.	Road Name	Simple		Fatal		Total	
		Day	Night	Day	Night	Day	Night
1.	Outer Ring Road	48	42	18	31	66	73
2.	Ring Road	52	31	17	20	69	51
3.	Rohtak Road	18	17	7	13	25	30
4.	GTK Road	19	13	4	8	23	21
5.	NH-8	16	10	8	3	24	13
6.	Najafgarh Road	10	15	6	4	16	19
7.	Mehrauli Badarpur Road	20	6	1	8	21	14
8.	Wazirabad Road	15	12	4	4	19	16
9.	Bawana Road	7	4	2	6	9	10
10.	Grand Trunk Road	12	8	1	6	13	14
11.	NH-24	12	7	0	7	12	14
12.	201 No Road	13	13	3	3	16	16
13.	Najafgarh Nangloi Road	9	3	2	4	11	7
14.	New Rohtak Road	3	4	3	3	6	7
15.	Mehrauli Gurgaon Road	2	5	3	2	5	7
16.	Dansha Road	4	2	2	3	6	5
17.	Narela Road	3	1	2	3	5	4
18.	Dev Prakash Shastri Road	2	2	1	4	3	6
19.	Mathura Road	16	13	4	0	20	13
20.	Kanjhawala Road	8	9	1	3	9	12
21.	Vikas Marg	8	7	2	2	10	9
22.	Pankha Road	5	3	1	3	6	6
23.	Road No 56	1	5	0	4	1	9
24.	Jharoda Road	1	0	1	3	2	3
25.	Patel Road	5	6	2	1	7	7

TABLE 6.12: CRASH PRONE ROADS FOR CYCLISTS BY TIME

S. No.	Road Name	Simple		Fatal		Total	
		Day	Night	Day	Night	Day	Night
1.	Rohtak Road	2	0	4	1	6	1
2.	Mehrauli Badarpur Road	5	1	2	1	7	2
3.	NH-8	2	0	1	2	3	2
4.	Najafgarh Road	1	3	0	2	1	5
5.	GTK Road	2	1	0	2	2	3
6.	Mehrauli Gurgaon Road	1	0	0	2	1	2
7.	Bijwasan Road	0	0	1	1	1	1
8.	Outer Ring Road	2	4	0	1	2	5
9.	Ring Road	1	3	0	1	1	4
10.	Bawana Road	2	0	0	1	2	1
11.	Road No 56	1	0	0	1	1	1
12.	Nelson Mandela Marg	1	1	0	0	1	1

CENTRAL DISTRICT

TABLE 6.13: CRASH PRONE ROADS IN CENTRAL DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Ring Road	11	35	14
2.	New Rohtak Road	4	10	4
3.	Desh Bandhu Gupta Rd	3	15	3
4.	Panchkuian Road	2	9	2
5.	Netaji Subhash Marg	2	8	2
6.	Qutab Road	2	3	2
7.	JawaharLal Nehru Rd	1	15	1
8.	Pusa Road	1	13	1
9.	Bahadur Shah Zafer Marg	1	8	1
10.	Asaf Ali Road	1	4	1

DWARKA DISTRICT

TABLE 6.14: CRASH PRONE ROADS IN DWARKA DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	NH-8	19	61	19
2.	201 No. Road	9	44	9
3.	Station Road	3	10	3
4.	Ring Road	3	5	3
5.	Rao Tula Ram Marg	2	6	2
6.	Sadar Thana Marg	2	5	2
7.	Palam Road	1	3	1
8.	Parade Road	1	3	1
9.	Sardar Patel Marg	1	2	1

NEW DELHI DISTRICT

TABLE 6.15: CRASH PRONE ROADS IN NEW DELHI DISTRICT

S. No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Baba Kharak Singh Marg	6	12	7
2.	Ridge Road	3	3	3
3.	Janpath	2	6	2
4.	Sardar Patel Marg	2	5	2
5.	Prithviraj Road	1	5	1
6.	Kasturba Gandhi Marg	1	5	1
7.	C-Hexagon	1	5	1
8.	Panchkuian Road	1	4	1
9.	Mother Teresa Road	1	3	1
10.	Tilak Marg	1	2	1

EAST DISTRICT

TABLE 6.16: CRASH PRONE ROADS IN EAST DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	NH-24	12	44	13
2.	Road No 56	9	23	9
3.	Yamuna Pusta Road	8	23	8
4.	Vikas Marg	5	30	5
5.	Road No 57	4	16	4
6.	Kotla Road	3	12	3
7.	Road No 58	3	7	3
8.	Noida Road	2	7	2
9.	Patpar Ganj Road	1	9	1
10.	71 No Road	1	4	1

NORTH EAST DISTRICT

TABLE 6.17: CRASH PRONE ROADS IN NORTH EAST DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Grand Trunk Road	21	78	21
2.	Wazirabad Road	20	97	20
3.	Pusta Road	7	36	8
4.	Road No 66	5	14	5
5.	Road No.68	3	3	3
6.	Loni Road	2	13	2
7.	Karawal Nagar Road	1	8	1
8.	Brijpuri Road	1	1	1

NORTH DISTRICT

TABLE 6.18: CRASH PRONE ROADS IN NORTH DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Ring Road	12	39	15
2.	Outer Ring Road	11	29	11
3.	Netaji Subhash Marg	4	11	4
4.	Sardhanand Marg	4	4	4
5.	Boulevard Road	2	16	2
6.	SPM Marg	2	12	2
7.	Raja Ram Marg	2	9	2
8.	Shyam Nath Marg	1	8	1
9.	Swami Narain Marg	1	7	2
10.	Old Rohtak Road	1	6	1

NORTH WEST DISTRICT

TABLE 6.19: CRASH PRONE ROADS IN NORTH WEST DISTRICT

S. No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	GTK Road	44	132	45
2.	Outer Ring Road	33	95	34
3.	Ring Road	12	39	12
4.	Narela Road	6	14	6
5.	Burari Road	5	22	5
6.	51 No Road	4	11	4
7.	Road No 43	3	10	3
8.	Road No 37	2	3	2
9.	Parwana Road	2	2	2
10.	Lawrence Road	1	3	1

OUTER DISTRICT

TABLE 6.20: CRASH PRONE ROADS IN OUTER DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Outer Ring Road	26	73	26
2.	Bawana Road	19	45	19
3.	Kanjhawala Road	6	31	6
4.	Road No 41	6	16	7
5.	Narela Road	3	7	3
6.	Ram Murti Passi Road	1	4	1
7.	Maharaja Agrasen Road	1	2	1
8.	Badli Road	1	1	1

SOUTH DISTRICT

TABLE 6.21: CRASH PRONE ROADS IN SOUTH DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Ring Road	14	49	15
2.	Mehrauli Gurgaon Road	11	23	11
3.	Outer Ring Road	9	35	9
4.	Mehrauli Badarpur Road	4	19	4
5.	Aurobindo Marg	3	18	3
6.	Mahipal Pur Road	3	14	3
7.	Press Enclave Marg	2	8	2
8.	Lala Lajpat Rai Path	1	17	1
9.	Aruna Asfali Marg	1	8	1
10.	Anuvrat Road	1	4	1

SOUTH EAST DISTRICT

TABLE 6.22: CRASH PRONE ROADS IN SOUTH EAST DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Mathura Road	14	77	15
2.	Mehrauli Badarpur Road	14	53	14
3.	Ring Road	7	43	7
4.	13A No Road	6	23	7
5.	Anand Mai Marg	5	22	5
6.	Agra Canal Road	5	19	5
7.	Outer Ring Road	4	22	4
8.	Noida Dnd Road	4	10	5
9.	NH-24	3	3	3
10.	Lal Bahadur Shastri Marg	2	26	2

SOUTH WEST DISTRICT

TABLE 6.23: CRASH PRONE ROADS IN SOUTH WEST DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Najafgarh Road	22	84	26
2.	Bijwasan Road	9	21	9
3.	Dansha Road	8	16	8
4.	NH-8	7	22	7
5.	Jharoda Road	7	8	7
6.	Outer Ring Road	5	12	5
7.	Najafgarh Nangloi Road	3	8	3
8.	Old Gurgaon Road	2	4	2
9.	Ghuman Hera Marg	2	4	2
10.	201 No. Road	2	4	2

WEST DISTRICT

TABLE 6.24: CRASH PRONE ROADS IN WEST DISTRICT

S.No.	Road Name	Fatal Crashes	Total Crashes	Persons Killed
1.	Rohtak Road	46	136	48
2.	Ring Road	25	69	25
3.	Pankha Road	9	24	9
4.	Dev Prakash Shastri Road	8	16	10
5.	Najafgarh Nangloi Road	7	30	7
6.	Outer Ring Road	7	14	7
7.	New Rohtak Road	7	13	7
8.	Najafgarh Road	6	23	6
9.	Patel Road	4	27	4
10.	Mayapuri Marg	4	9	4

CRASH PRONE ZONES AND BLACKSPOTS

All crash spots are geo-tagged and marked on GIS Map. This helps in advanced analysis including spatial and cluster-based analysis of crash-prone zones (APZ).
Criteria adopted to define such crash-prone zones:

Three or more fatal crashes within the diameter of 500 meters or ten or more total crashes in the same region.

Crashes on all the major and minor roads joining the intersection having direct influence of traffic movement are considered to identify crash prone zones:

(i) All major road corridors of Delhi.
(ii) Top 50 roads having maximum fatal crashes in 2021.

87 cluster points were identified as crash-prone zones in 2021, as per the above-mentioned criteria. Around 24.4 percent of total fatal crashes (294 out of 1206) occurred in the road-stretches at crash prone zones which is about 50 km. in length.

Top 10 such crash prone zones having maximum number of fatal crashes are termed as crash **"**Blackspots". (Time period taken is the calendar year i.e. 1st January to 31st December.)

TABLE 6.25: TOP 10 BLACK SPOTS OF THE YEAR 2021

S.No.	Black Spot	Simple Crashes	Fatal Crashes	Total Crashes	Persons Injured	Persons Killed	Name Of The Road
1.	Bhalswa SChowk	3	8	11	3	8	Outer Ring Road
2.	Punjabi Bagh Chowk	11	7	18	16	7	Ring Road
3.	Mukarba Chowk	11	7	18	15	7	Outer Ring Road
4.	Zakhira Flyover	10	6	16	16	6	New Rohtak Road
5.	Libaspur Bus Stand	10	6	16	14	6	GTK Road
6.	Mukund Pur Chowk	7	6	13	12	6	Outer Ring Road
7.	Moti Bagh Flyover	7	5	12	15	5	Ring Road
8.	Nangli Poona	4	5	9	5	5	GTK Road
9.	Siraspur	2	5	7	3	5	GTK Road
10.	Shastri Park/It Park	21	4	25	22	4	Grand Trunk Road

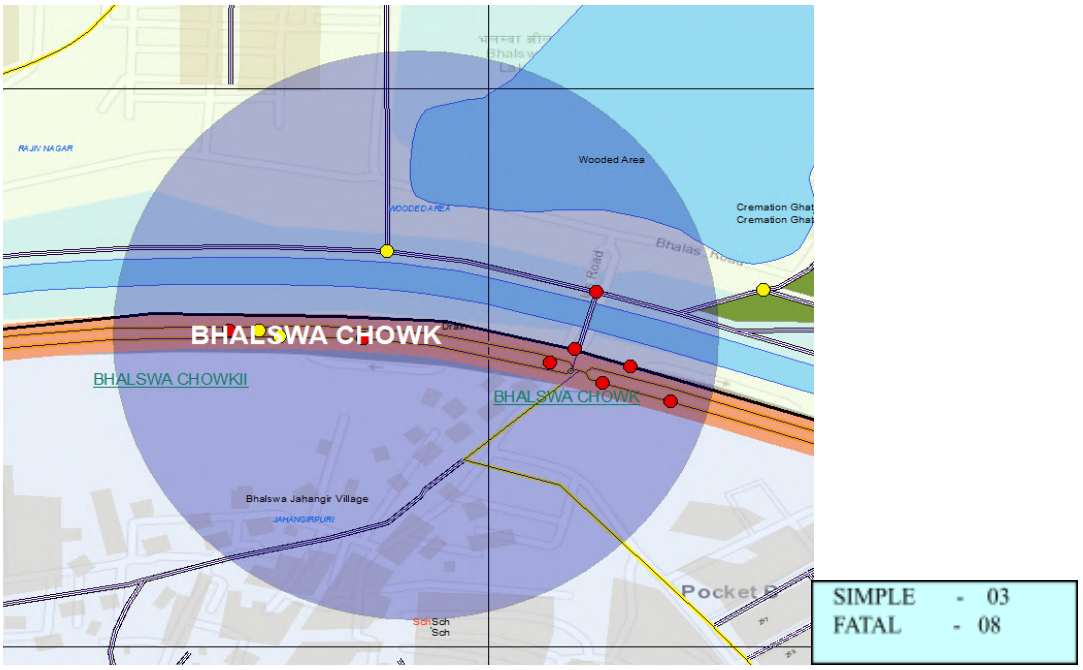
*In 2020; Bhalswa Chowk, Punjabi Bagh Chowk, Mukarba Chowk and Mukundpur Chowk were at Serial No.2,6,3 and 8 respectively.

TABLE 6.26: COMPARATIVE STATUS OF BLACK SPOTS

S.No	Black Spot	Simple Crashes		Fatal Crashes		Total Crashes		Persons Injured		Persons Killed	
		2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
1.	Azadpur Chowk	14	4	9	2	23	6	22	4	9	2
2.	Bhalswa Chowk	8	3	8	8	16	11	12	3	9	8
3.	Mukarba Chowk	6	11	8	7	14	18	7	15	8	7
4.	Burari Chowk	6	4	8	4	14	8	11	6	8	5
5.	Majnu Ka Tila	5	10	7	4	12	14	10	15	7	4
6.	Punjabi Bagh Chowk	17	11	6	7	23	18	22	16	6	7
7.	Ghazipur Flyover Murga Mandi	13	8	6	2	19	10	16	9	6	2
8.	Mukundpur Chowk	7	7	6	6	13	13	7	12	6	6
9.	Rajokri Flyover	4	6	6	2	10	8	6	8	6	2
10.	Madhuban Chowk	8	4	5	1	13	5	9	6	5	1

BHALSWA CHOWK (BRD)

Bhalswa Chowk is situated on the Outer Ring Road near Bhalswa Village. There is a heavy movement of pedestrians, two-wheelers and other vehicles. The volume of traffic is heavy on the Outer Ring road. Out of eight fatal crashes, four were hit and run cases. Primarily tempos were the offending vehicles. Pedestrian victims in four and two-wheeler riders were victims in two fatal crashes**.** Most of the fatal crashes occurred during the day time.



Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2020	8	8	16	12	9
2021	3	8	11	3	8

Day Night-Wise Crashes		
	Fatal	**Total**
Night	4	5
Day	4	6

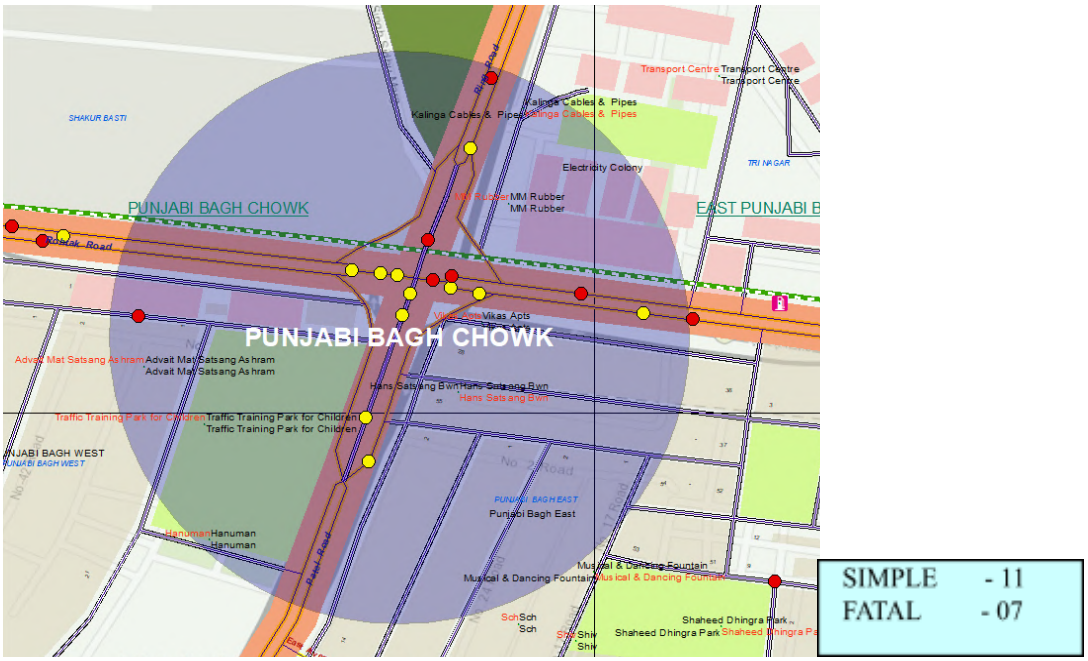
Most Vulnerable Period		
	Fatal	**Total**
1400-1600	2	2
2200-0000	2	2

Top Offending Vehicles		
	Fatal	**Total**
Tempo	2	2
Unknown Vehicle	4	4

Top Victims		
	Fatal	**Total**
Pedestrian	4	6
Scooter/M.Cycle	2	3

PUNJABI BAGH CHOWK (PBC)

Punjabi Bagh Chowk is the region around the junction point of Ring Road and Rohtak Road. The chowk has three levels, a flyover on Ring Road, an underpass on Rohtak Road and a signal-controlled roundabout at ground level. There is high speed vehicular movement on Ring Road and Rohtak Road, including HTVs and other heavy motor vehicles. Most of the fatal crashes were hit and run cases. Cars (Two fatal out of seven fatal crashes) were the main offending vehicle. Two-wheelers riders were victims in nine out of 18 total crash cases. Most of the fatal crashes occurred in the night.



Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2020	17	6	23	22	6
2021	11	7	18	16	7

Day Night-Wise Crashes		
	Fatal	**Total**
Night	5	10
Day	2	8

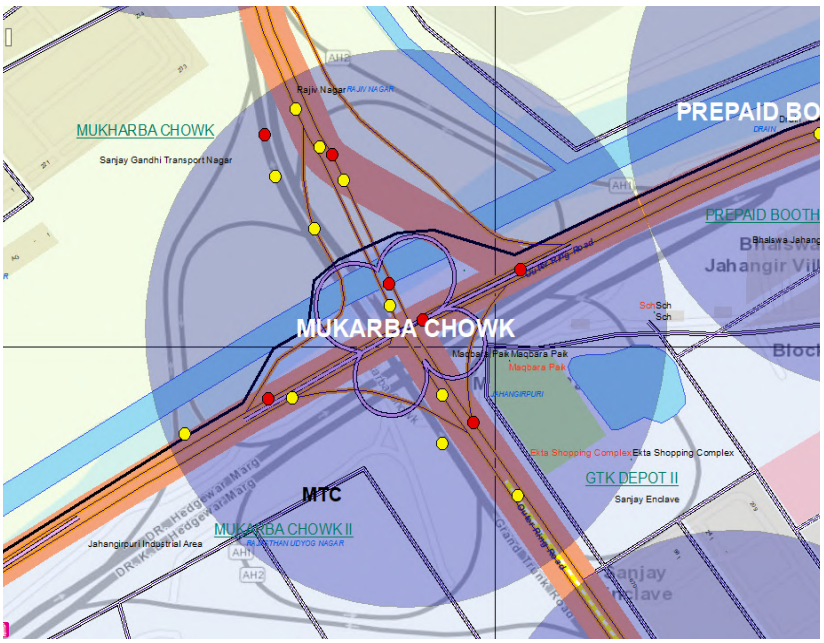
Most Vulnerable Period		
	Fatal	**Total**
2000-2200	0	5
2300-0200	3	4

Top Offending Vehicles		
	Fatal	**Total**
Unknown Vehicle	4	11
Car/Taxi	2	5

Top Victims		
	Fatal	**Total**
Scooter/M.Cycle	4	9
Pedestrian	3	5

MUKARBA CHOWK (BRD)

Mukarba Chowk is around the junction point of Outer Ring Road and GT Karnal Road. Outer Ring Road and GT Karnal Road witness movement of high speed as well as heavy vehicles including HTVs, etc. Most of the fatal crashes were hit and run cases. Cars/taxis were the main offending vehicles. Two-wheeler riders were victims in four fatal crashes and pedestrians were victims in three fatal crashes. More fatal crashes occurred in the night.



Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2020	6	8	14	7	8
2021	11	7	18	15	7

Day Night-Wise Crashes		
	Fatal	**Total**
Night	4	10
Day	3	8

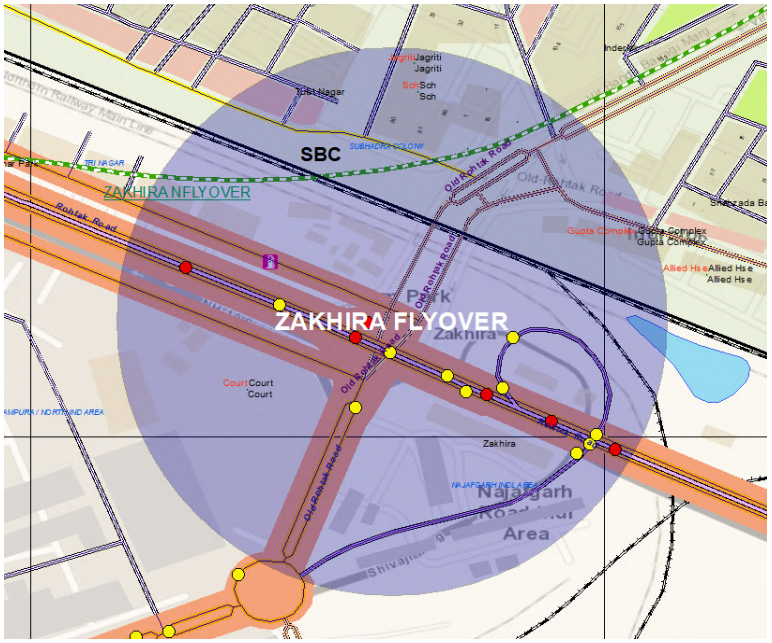
Most Vulnerable Period		
	Fatal	**Total**
1800-2100	2	4
2300-2400	2	4

Top Offending Vehicles		
	Fatal	**Total**
Unknown Vehicle	4	6
Car/Taxi	1	3

Top Victims		
	Fatal	**Total**
Scooter/M.Cycle	4	8
Pedestrian	3	5

ZAKHIRA FLYOVER (PNC)

Zakhira flyover is the region around the junction point of Old Rohtak Road and New Rohtak Road. New Rohtak Road and Old Rohtak Road witness movement of high speed as well as heavy vehicles including HTVs, etc. Most fatal crashes were hit and run cases. Primarily, HTVs were the main offending vehicles. Two-wheeler riders were victims in three fatal crashes and Pedestrians were victims in two fatal crashes. Fatal crashes occurred in the day and night equally.



SIMPLE - 10
FATAL - 06

Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2020	10	4	14	11	4
2021	10	6	16	16	6

Day Night-Wise Crashes		
	Fatal	**Total**
Night	3	6
Day	3	10

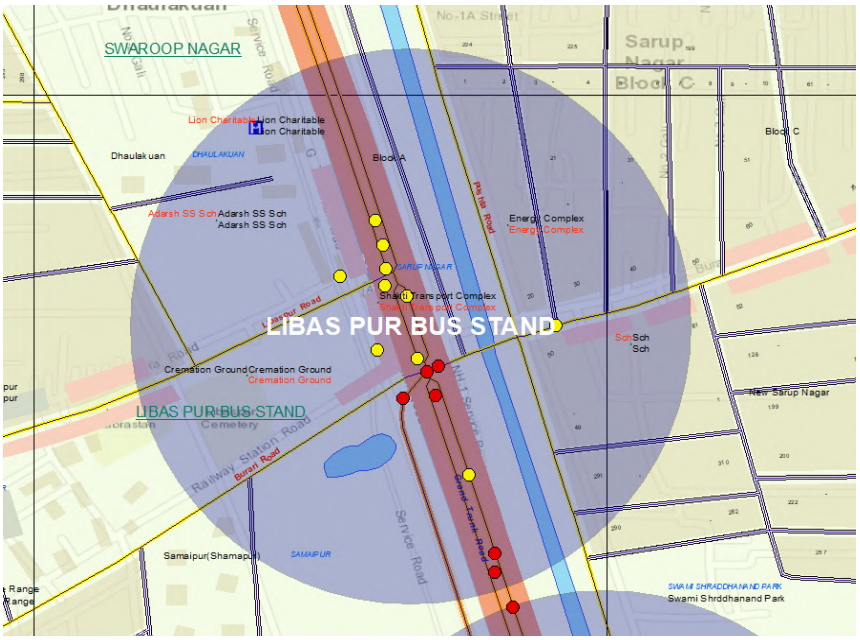
Most Vulnerable Period		
	Fatal	**Total**
1500-1700	2	3
0700-0900	1	3

Top Offending Vehicles		
	Fatal	**Total**
Unknown Vehicle	2	4
HTVs	2	3

Top Victims		
	Fatal	**Total**
Scooter/M.Cycle	3	7
Pedestrian	2	6

LIBAS PUR BUS STAND (BRD)

Libaspur bus stand is situated on GT Karnal Road near Swaroop Nagar. The junction witnesses high speed movement including heavy vehicles such as HTVs, etc. The volume of traffic is heavy on the GT Karnal Road. Out of six fatal crashes, three were hit and run cases. Primarily HTVs/Goods were the offending vehicles. Two-wheeler riders were victims in three fatal crashes**.** All of the fatal crashes occurred during the night.



SIMPLE - 10
FATAL - 06

Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2020	3	2	5	3	2
2021	10	6	16	14	6

Day Night Wise Crashes		
	Fatal	**Total**
Night	6	10
Day	0	6

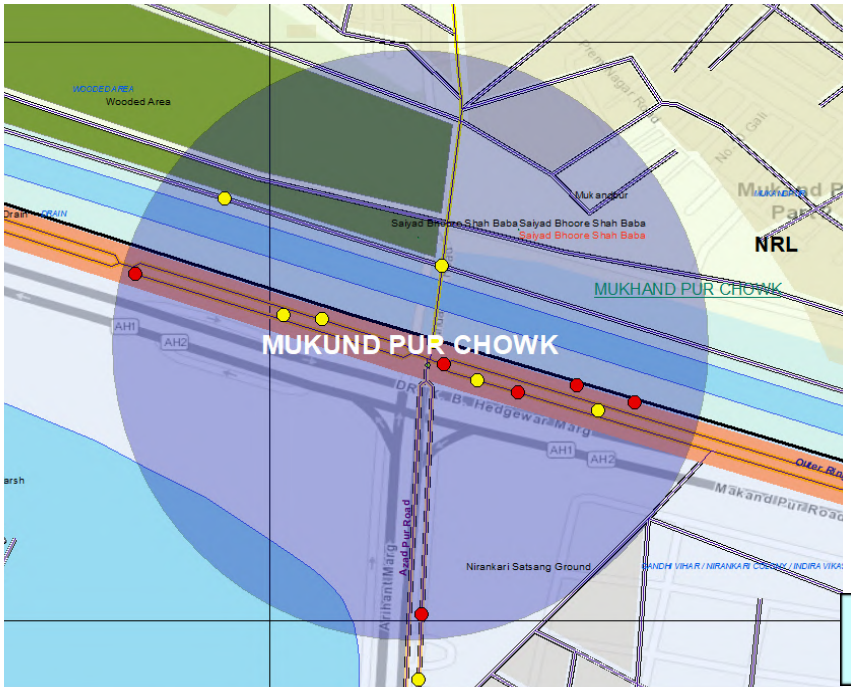
Most Vulnerable Period		
	Fatal	**Total**
2100-2400	4	7
0600-0700	1	2

Top Offending Vehicles		
	Fatal	**Total**
Unknown Vehicle	3	6
HTV/Goods	3	4

Top Victims		
	Fatal	**Total**
Pedestrian	1	6
Scooter/M.Cycle	3	6

MUKUND PUR CHOWK (BRD)

Mukundpur Chowk is around the junction point of Outer Ring Road and Road no. 51. High speeding vehicles including HTVs and other heavy motor vehicles move on this stretch. Main offending vehicles are tempo and cars. Pedestrians and two-wheelers were the main victims. Most of the fatal crashes occurred during the day.



Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2020	7	5	13	7	6
2021	7	6	13	12	6

Day Night Wise Crashes		
	Fatal	**Total**
Night	2	6
Day	4	7

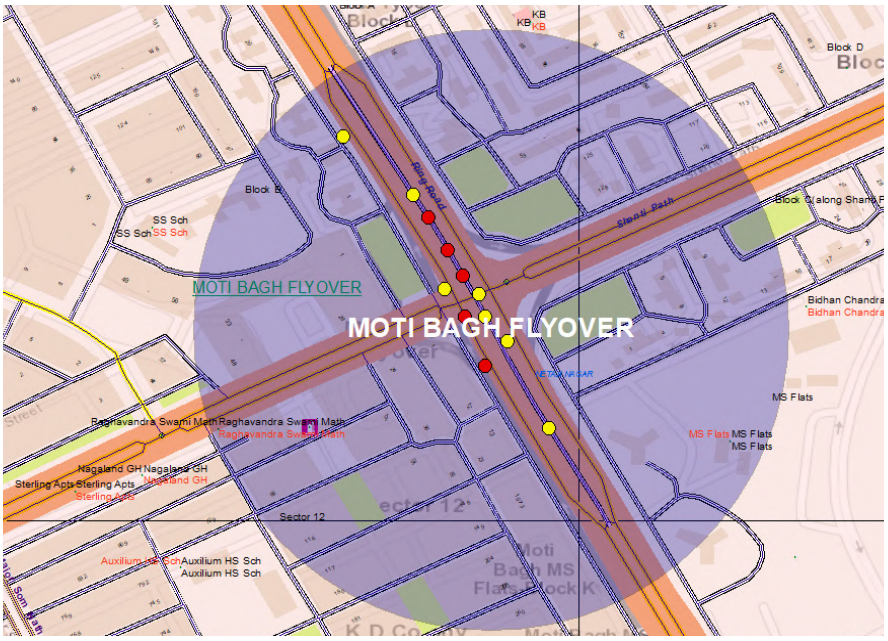
Most Vulnerable Period		
	Fatal	**Total**
0100-0300	2	2
1400-1500	2	2

Top Offending Vehicles		
	Fatal	**Total**
Unknown Vehicle	1	3
Car	1	3
Tempo	2	2

Top Victims		
	Fatal	**Total**
Scooter/M.Cycle	2	6
Pedestrian	2	3

MOTI BAGH FLYOVER (RKP)

Moti Bagh flyover is situated at the junction point of Ring Road and Shanti Path. There is high speed vehicular movement on the Ring Road, including HTVs and other heavy motor vehicles. HTVs were the main offending vehicle in two fatal crashes. Pedestrians were the main victims in two fatal crashes**.** Most of the fatal crashes occurred during the night.



SIMPLE - 07
FATAL - 05

Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2020	4	1	5	5	1
2021	7	5	12	15	5

Day Night Wise Crashes		
	Fatal	**Total**
Night	4	7
Day	1	5

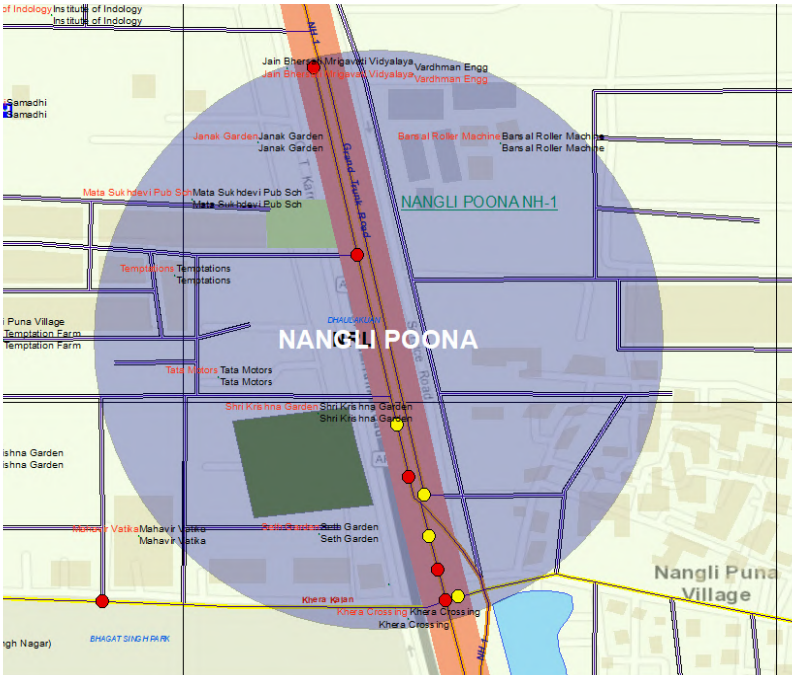
Most Vulnerable Period		
	Fatal	**Total**
0500-0700	2	3
1300-1600	1	3

Top Offending Vehicles		
	Fatal	**Total**
Unknown Vehicle	1	4
HTV/Goods	2	2

Top Victims		
	Fatal	**Total**
Pedestrian	2	3
Scooter/M.Cycle	1	5

NANGLI POONA (BRD)

Nangli Poona is situated on GT Karnal Road. High speeding vehicles including HTVs, Cars and other heavy motor vehicles move on this stretch. Most fatal crashes were hit and run cases. Main offending vehicles were private cars. Pedestrians were the main victims in four fatal crashes. More of the fatal crashes occurred during the night.



Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2021	4	5	9	5	5

Day Night Wise Crashes		
	Fatal	**Total**
Night	3	5
Day	2	4

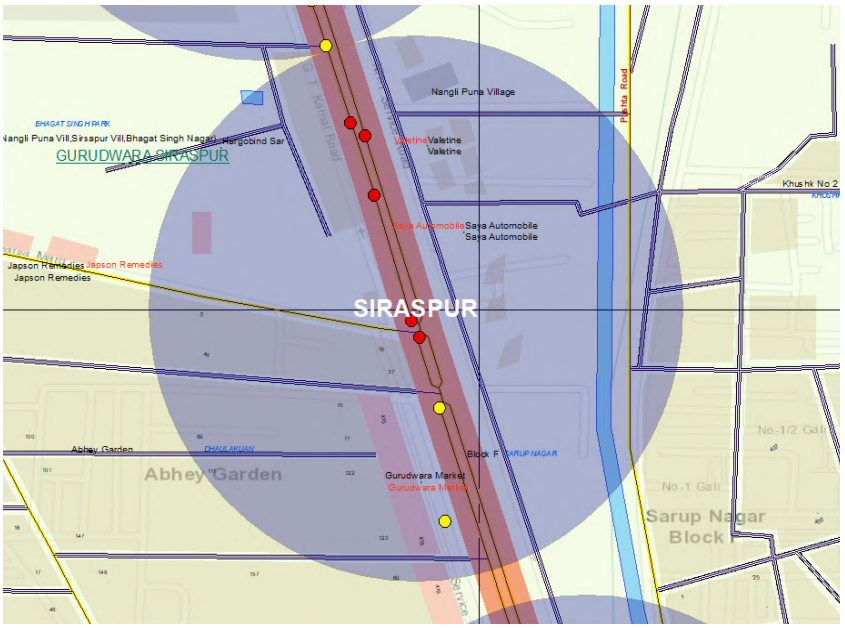
Most Vulnerable Period		
	Fatal	**Total**
2200-2400	2	4
1900-2100	2	2

Top Offending Vehicles		
	Fatal	**Total**
Unknown Vehicle	3	4
Cars	2	2

Top Victims		
	Fatal	**Total**
Pedestrian	4	5
Scooter/M.Cycle	1	3

SIRASPUR (BRD)

Siraspur is situated on G.T. Karnal Road. It is a highway village where local residents have to face the heavy movement of speeding HTVs, other state buses, tempos and cars to cross the road. Most fatal crashes were hit and run cases**.** Pedestrians were the main victim in 4 fatal crashes**.** More fatal crashes occurred during day hours.



Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2020	4	1	5	5	1
2021	2	5	7	3	5

Day Night Wise Crashes		
	Fatal	**Total**
Night	2	2
Day	3	5

Most Vulnerable Period		
	Fatal	**Total**
1900-2200	2	3
0900-1200	2	2

Top Offending Vehicles		
	Fatal	**Total**
Unknown Vehicle	3	3
Tempo	1	1

Top Victims		
	Fatal	**Total**
Pedestrian	4	5

SHASTRI PARK/IT PARK (SHD)

Shastri Park/IT Park is the region around the junction point of Grand Trunk Road (NH-58) and Pusta Road. There is large-scale movement of slow moving vehicles-cycles, cycle rickshaws, two-wheelers and TSRs from Pusta Road to the G.T. Road and across the G.T Road. Most of the fatal crashes were hit and run cases. Main victims were pedestrians in two fatal crashes. Fatal crashes occurred during day and night hours.

Comparative Road Crashes					
Year	**Simple Crashes**	**Fatal Crashes**	**Total Crashes**	**Persons Injured**	**Persons Killed**
2020	8	4	12	8	4
2021	21	4	25	22	4

Day Night Wise Crashes		
	Fatal	**Total**
Night	2	10
Day	2	15

Most Vulnerable Period		
	Fatal	**Total**
0000-0400	2	4
0900-1000	0	3

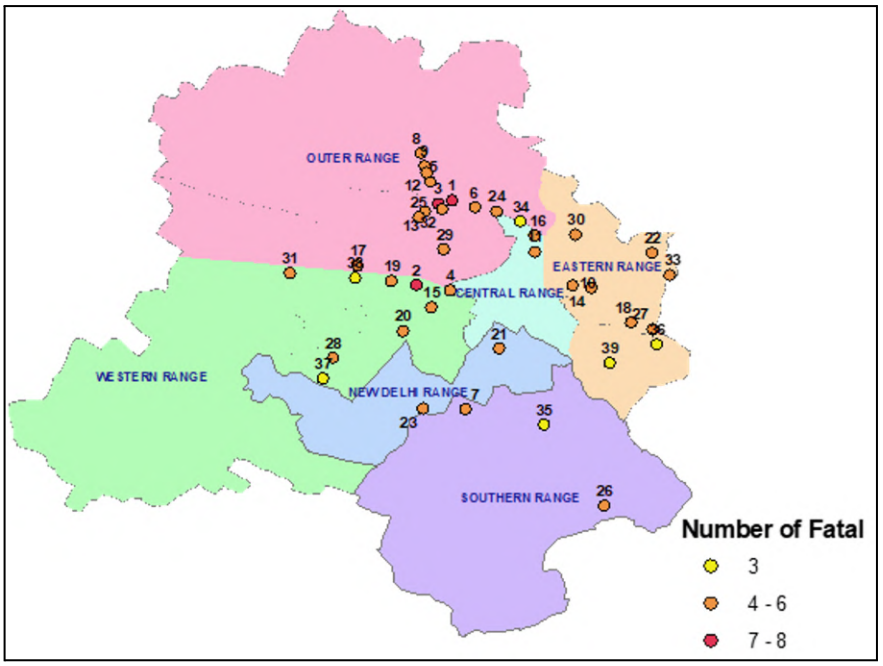
Top Offending Vehicles		
	Fatal	**Total**
Unknown Vehicle	4	12
Scooter/M.Cycle	0	5

Top Victims		
	Fatal	**Total**
Pedestrian	2	15
Scooter/M.Cycle	1	6

TABLE 6.27: CRASH PRONE ZONES– 2021

Categories Of Crashes		Simple Crashes	Fatal Crashes	Total Crashes
Crashes in 2021		3514	1206	4720
Crashes at crash prone zones	Number	538	294	832
	Percentage	15.3 %	24.4 %	17.6 %

MAP 6.9: CRASH PRONE ZONES – 2021 (1-39)



MAP 6.10: CRASH PRONE ZONES – 2021 (40-87)

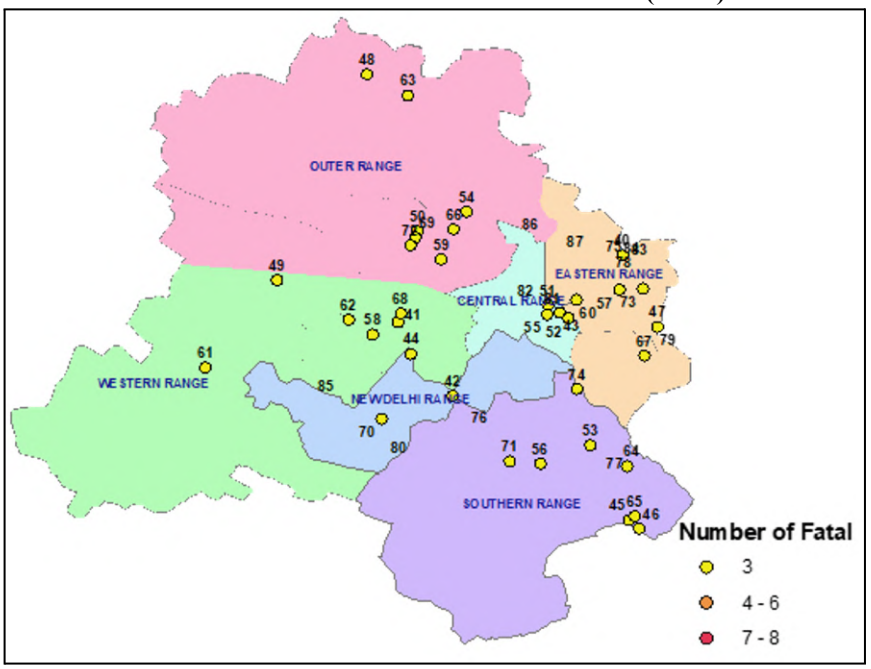


TABLE 6.28: CRASH PRONE ZONES – 2021

S.No.	Crash Prone Zone	Simple Crashes	Fatal Crashes	Total Crashes
1.	Bhalswa Chowk	3	8	11
2.	Mukarba Chowk	11	7	18
3.	Punjabi Bagh Chowk	11	7	18
4.	Zakhira Flyover	10	6	16
5.	Libaspur Bus Stand	10	6	16
6.	Mukundpur Chowk	7	6	13
7.	Moti Bagh Flyover	7	5	12
8.	Nangli Poona	4	5	9
9.	Siraspur	2	5	7
10.	Shastri Park/ IT Park	21	4	25
11.	Majnu Ka Tila	10	4	14
12.	Metro Station Haider Pur	9	4	13
13.	Swaroop Nagar	9	4	13
14.	Seelampur T Point	8	4	12
15.	Rama Road Crossing	6	4	10
16.	Metro Station Madipur	5	4	9
17.	RML Hospital	5	4	9
18.	Wazirabad	5	4	9
19.	Maya Puri Chowk	5	4	9
20.	Mangolpuri Flyover	5	4	9
21.	Karkari More	5	4	9
22.	Jharera Village	4	4	8
23.	Haider Pur	4	4	8
24.	Burari Chowk	4	4	8
25.	Gagan Cinema	4	4	8
26.	Okhla More	3	4	7
27.	Telco Gazipur	3	4	7
28.	Khajoori Khas Pusta Road	2	4	6
29.	Near HaldiRam Wazirpur	2	4	6
30.	C-1 Janakpuri	2	4	6
31.	Rajdhani Park	1	4	5
32.	Round About Seemapuri	0	4	4
33.	GTK Depot Jahangirpuri	0	4	4
34.	Gandhi Vihar Bus Stand	23	3	26
35.	Mool Chand	14	3	17
36.	Power House Mahavir Enclave	10	3	13
37.	Under Pass Gajipur	10	3	13
38.	Peeragarhi Chowk	10	3	13
39.	Akshardham Mandir	9	3	12
40.	Dhaula Kuan	8	3	11
41.	Rajouri Garden	8	3	11
42.	Loni Road Crossing	8	3	11
43.	Railway Under Pulprahladpur	7	3	10
44.	Vijay Ghat	7	3	10
45.	Toll Plaza Badarpur	7	3	10
46.	Anand Vihar ISBT	7	3	10
47.	Naraina	7	3	10
48.	VIP College Pitampura	6	3	9
49.	Raja Harishchander Hospital	6	3	9
50.	Mundka Metro Station	6	3	9
51.	Nigam Bodh Ghat	5	3	8
52.	Flyover Raja Ram Marg	5	3	8
53.	Subhash Nagar Metro Station	4	3	7

54.	Lajpat Rai Market(Lal Qila)	4	3	7
55.	Shahdara Flyover	4	3	7
56.	Modi Mill Flyover	4	3	7
57.	Prem Bari Pull	4	3	7
58.	Jahangir Puri Bus Stand Outer Ring Road	4	3	7
59.	Chirag Delhi Flyover	4	3	7
60.	Shastri Park Metro Station	4	3	7
61.	Khampur Village	3	3	6
62.	Azadpur Sabzi Mandi	3	3	6
63.	Keshopur T Point	3	3	6
64.	Tughlakabad Metro Station	3	3	6
65.	Near Manish Furniture Mkt Nangloi Road	3	3	6
66.	Jasola Vihar	3	3	6
67.	ESI Hospital Ring Road	2	3	5
68.	Khichripur	2	3	5
69.	Metro Station Sadar Bazar	2	3	5
70.	Santom Hospital Outer Ring Road	2	3	5
71.	Power House Pitampura	1	3	4
72.	Panchsheel Flyover	1	3	4
73.	Nizamuddin Yamuna Bridge	0	3	3
74.	Dilshad Garden	0	3	3
75.	Gokalpuri	12	2	14
76.	Hyatt Hotel	9	2	11
77.	Hanuman Mandir Yamuna Bazar	8	2	10
78.	Tees Hazari Red Light	8	2	10
79.	Murga Mandi Flyover	8	2	10
80.	Sarita Vihar Flyover	8	2	10
81.	Durgapuri Chowk	8	2	10
82.	Mahipalpur Flyover	8	2	10
83.	DTC Bus Depot Nand Nagri	15	1	16
84.	Harnam Palace Ashok Nagar	12	1	13
85.	Sec-1,2 Red Light Dwarka	11	1	12
86.	Nirankari Colony	9	1	10
87.	Khajoori Chowk	12	0	12

Among traffic ranges, Outer Range (now Northern Range) (22), Eastern Range (21), Western Range (16), Southern Range (15) and Central Range (Eight), have the highest concentration of crash prone zones.

Among the Traffic Districts, North-West (16), North-East (14), West (13), South-East (Nine) and North (Eight) have maximum crash prone zones.

The roads of Burari circle (10), Seemapuri circle (seven) and Rohini circle (five) have maximum crash prone zones.

12 circles have 53 crash prone zones accounting for 183 fatal crashes in 2021.

Around 24.37 of all fatal crashes (287 out of 1163) occurred in the road-stretches at APZ which is about 50 km. in length.

TABLE 6.29: RANGE-WISE CRASH PRONE ZONES – 2021

S. No.	Range Name	Number Of Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	Outer Range (now Northern Range)	22	108	90	198
2.	Eastern Range	21	154	60	214
3.	Western Range	16	93	60	153
4.	Southern Range	15	82	45	127
5.	Central Range	8	71	24	95
6.	New Delhi Range	5	30	15	45
Total		**87**	**538**	**294**	**832**

TABLE 6.30: DISTRICT-WISE CRASH PRONE ZONES – 2021

S. No.	Traffic District	Number Of Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	North-West	16	81	69	150
2.	North-East	14	110	38	148
3.	West	13	83	51	134
4.	South-East	9	49	27	76
5.	North	8	71	24	95
6.	East	7	44	22	66
7.	South	6	33	18	51
8.	Outer	6	27	21	48
9.	Dwarka	4	25	11	36
10.	South-West	3	10	9	19
11.	New Delhi	1	5	4	9
Total		**87**	**538**	**294**	**832**

TABLE 6.31: CIRCLE-WISE CRASH PRONE ZONES – 2021

S. No.	Circle Name	Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	Burari Circle	10	63	49	112
2.	Seema Puri Circle	7	47	18	65
3.	Rohini Circle	5	22	17	39
4.	Civil Lines Circle	4	43	14	57
5.	Kalyan Puri Circle	4	29	11	40
6.	Sarita Vihar Circle	4	21	11	32
7.	Shahdara Circle	4	37	14	51
8.	Delhi Cantt Circle	3	14	10	24
9.	Khajoori Circle	3	26	6	32
10.	Kotwali Circle	3	20	8	28
11.	Punjabi Bagh Circle	3	26	14	40
12.	Vivek Vihar Circle	3	15	11	26
13.	Ashok Vihar Circle	2	6	7	13
14.	Hauz Khas Circle	2	5	6	11
15.	Janak Puri Circle	2	12	7	19
16.	Kalkaji Circle	2	10	7	17
17.	Lajpat Nagar Circle	2	14	6	20
18.	Maya Puri Circle	2	12	7	19
19.	Model Town Circle	2	3	7	10
20.	Nangloi Circle	2	7	7	14
21.	Narela Circle	2	9	6	15
22.	Patel Nagar Circle	2	16	10	26
23.	R.K. Puram Circle	2	16	7	23
24.	Rajouri Garden Circle	2	10	6	16
25.	Tilak Nagar Circle	2	7	6	13
26.	Dwarka Circle	1	11	1	12
27.	Mangol Puri Circle	1	5	4	9
28.	Najafgarh Circle	1	3	3	6
29.	Parliament Street Circle	1	5	4	9
30.	Sabzi Mandi Circle	1	8	2	10
31.	Saket Circle	1	4	3	7
32.	Sukhdev Vihar Circle	1	4	3	7
33.	Vasant Vihar Circle	1	8	2	10
	Total	**87**	**538**	**294**	**832**

Top twelve roads have 70 crash Prone Zones and 239 fatal crashes occurred at these places in 2021.

The Outer Ring Road (18), Ring Road (14), and GTK Road (8) have the maximum number of dangerous stretches.

TABLE 6.32: ROAD-WISE CRASH PRONE ZONES– 2021

S. No.	Road	Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	Outer Ring Road	18	110	66	176
2.	Ring Road	14	97	48	145
3.	GTK Road	8	42	37	79
4.	Wazirabad Road	6	63	11	74
5.	NH-24	5	29	14	43
6.	Rohtak Road	4	22	17	39
7.	Grand Trunk Road	4	33	14	47
8.	Mathura Road	3	18	8	26
9.	Mehrauli Badarpur Road	2	10	7	17
10.	NH-8	2	12	6	18
11.	Road No.56	2	10	7	17
12.	Road No.201	2	13	4	17
13.	Netaji Subhash Marg	1	4	3	7
14.	Boulevard Road	1	8	2	10
15.	Dabri Palam Road	1	10	3	13
16.	Dsidc Narela Road	1	6	3	9
17.	Josef Brij Tito Marg	1	4	3	7
18.	Loni Road	1	8	2	10
19.	Old GT Road	1	4	3	7
20.	Road No 57	1	5	4	9
21.	Patel Road	1	6	4	10
22.	Najafgarh Road	1	4	3	7
23.	Nangloi Najafgarh Road	1	3	3	6
24.	BKS Marg	1	5	4	9
25.	Road No 13A	1	3	3	6
26.	Raja Ram Kohli Marg	1	5	3	8
27.	Pusta Road	1	2	4	6
28.	Pankha Road	1	2	4	6
29.	Road No 68	1	0	4	4
Total		**87**	**538**	**294**	**832**

PEDESTRIAN CRASH PRONE ZONES

Out of the 87 crash prone zones, 13 are identified as pedestrian crash prone zones based on the criteria of three or more fatal or ten or more total pedestrian crashes within the range of 500 meter diameter.

MAP 6.10: PEDESTRIAN CRASH PRONE ZONES – 2021

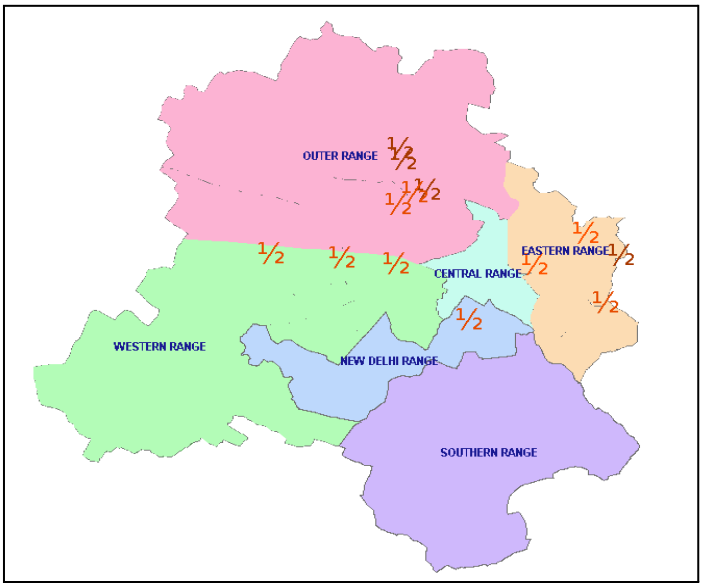


TABLE 6.33: PEDESTRIAN CRASH PRONE ZONES – 2021

S. No.	Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	Bhalswa Chowk	2	4	6
2.	Siraspur	1	4	5
3.	Nangli Poona	1	4	5
4.	Round About Seemapuri	0	4	4
5.	Peera Garhi Chowk	6	3	9
6.	RML Hospital	3	3	6
7.	Telco Ghazipur	2	3	5
8.	Punjabi Bagh Chowk	2	3	5
9.	Mukarba Chowk	2	3	5
10.	Mundka Metro Station	1	3	4
11.	Haider Pur	0	3	3
12.	Shastri Park/ IT Park	13	2	15
13.	Harnam Palace Ashok Nagar	11	1	12

(Fatal Crashes In Descending Order)

TWO-WHEELER CRASH PRONE ZONES

Out of the 87 crash prone zones, 15 are identified as two-wheeler crash prone zones based on the criteria of three or more fatal or ten or more total two-wheeler crashes within the range of 500 meter diameter.

MAP 6.11: TWO-WHEELER CRASH PRONE ZONES – 2021

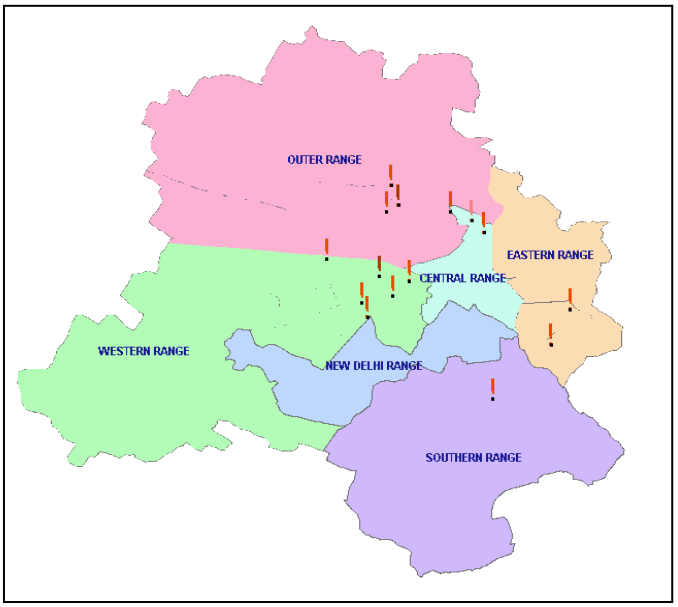


TABLE 6.34: TWO-WHEELER CRASH PRONE ZONES – 2021

S. No.	Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	Punjabi Bagh Chowk	5	4	9
2.	Mukarba Chowk	4	4	8
3.	Mool Chand	8	3	11
4.	Metro Station Haider Pur	8	3	11
5.	Rajouri Garden	5	3	8
6.	Akshardham Mandir	5	3	8
7.	Zakhira Flyover	4	3	7
8.	Rama Road Crossing	4	3	7
9.	Mangolpuri Flyover	3	3	6
10.	Libas Pur Bus Stand	3	3	6
11.	Burari Chowk	3	3	6
12.	Wazirabad	2	3	5
13.	Karkari More	2	3	5
14.	Maya Puri Chowk	1	3	4
15.	Gandhi Vihar Bus Stand	13	2	15

(Fatal Crashes In Descending Order)

These places either have:

1. High density two-wheeler movement
2. Located on high speed corridors
3. May have too many openings of minor roads onto the major road,
4. Lack of nearby 'U' turn, or,
5. Lack of road crossing facility prompting riders to ride on the wrong side and indulge in random movement of two-wheelers.

Roads at such crash-prone zones have to be studied and redesigned for safe movement of two-wheelers.

HTVs CRASH PRONE ZONES

Five HTVs crash prone zones identified as per the criteria of two or more total crashes by HTVs within the range of 500-meter diameter.

MAP 6.12: HTVS CRASH PRONE ZONES – 2021

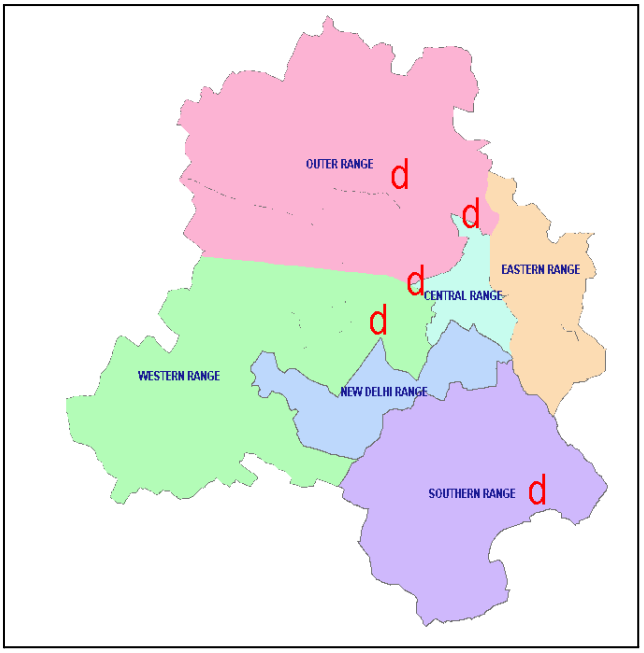


TABLE 6.35: HTVS CRASH PRONE ZONES – 2021

S. No.	Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	Libas Pur Bus Stand	1	3	4
2.	Zakhira Flyover	1	2	3
3.	Maya Puri Chowk	1	2	3
4.	Okhla More	2	1	3
5.	Gandhi Vihar Bus Stand	3	0	3

(Fatal Crashes In Descending Order)

Primarily heavy vehicles move on these stretches (NHs and Ring Road/Outer Ring Road).

HIT AND RUN CRASH PRONE ZONES

20 crash prone zones are identified as hit and run crash prone zones based on the criteria of three or more fatal crashes (hit and run cases) within the range of 500-meter diameter. Installation of CCTV cameras and stationing of CATs ambulances at these places can be effective in preventing fatalities. These are the places with high-speed corridors and the places where there is heavy vehicle movement during the night.

TABLE 6.36: HIT AND RUN CRASH PRONE ZONES – 2021

S. No.	Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	Shastri Park/IT Park	8	4	12
2.	Punjabi Bagh Chowk	7	4	11
3.	Mukarba Chowk	2	4	6
4.	Round About Seemapuri	0	4	4
5.	Bhalswa Chowk	0	4	4
6.	Metro Station Haider Pur	4	3	7
7.	Libas Pur Bus Stand	3	3	6
8.	Prem Bari Pull	3	3	6
9.	Toll Plaza Badarpur	3	3	6
10.	Near HaldiRam	2	3	5
11.	Rajdhani Park	1	3	4
12.	Rama Road Crossing	1	3	4
13.	Keshopur T Point	1	3	4
14.	Karkari More	1	3	4
15.	ESI Hospital	1	3	4
16.	Nangli Poona	1	3	4
17.	Okhla More	0	3	3
18.	Siraspur	0	3	3
19.	Haider Pur	0	3	3
20.	GTK Depot	0	3	3

(Fatal Crashes In Descending Order)

DAY TIME CRASH PRONE ZONES

18 crash prone zones were more vulnerable zones during day time.

MAP 6.13: DAY-TIME CRASH PRONE ZONES – 2021

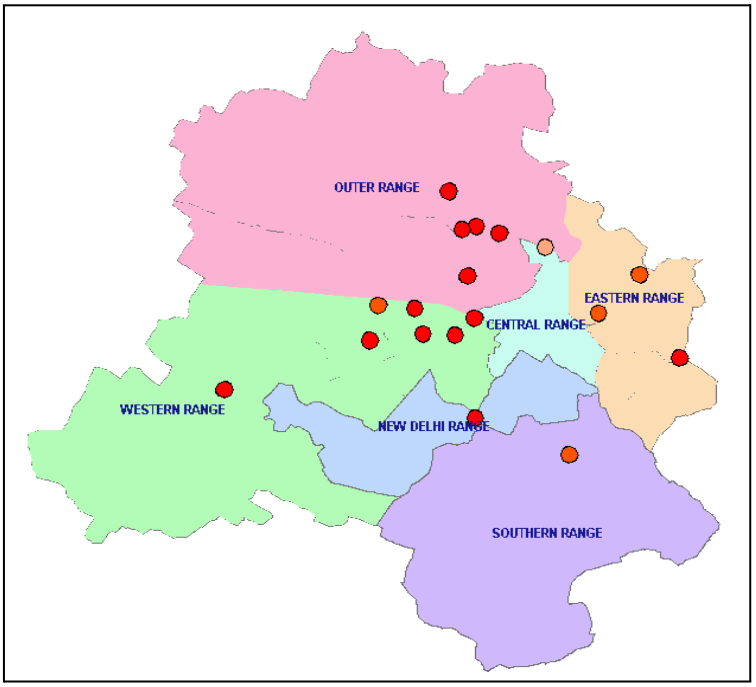


TABLE 6.37: DAY-TIME CRASH PRONE ZONES – 2021

S. No.	Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	Mukund Pur Chowk	3	4	7
2.	Metro Station Madipur	2	4	6
3.	Bhalswa Chowk	2	4	6
4.	Zakhira Flyover	7	3	10
5.	Mukarba Chowk	5	3	8
6.	Rama Road Crossing	4	3	7
7.	Dhaula Kuan	3	3	6
8.	Near Manish Furniture Mkt Nangloi Road	2	3	5
9.	Siraspur	2	3	5
10.	Telco Ghazipur	2	3	5
11.	Near HaldiRam	1	3	4
12.	Keshopur T Point	1	3	4
13.	ESI Hospital	0	3	3
14.	Shastri Park/IT Park	13	2	15
15.	Peera Garhi Chowk	8	2	10
16.	Gokalpuri	8	2	10
17.	Mool Chand	8	2	10
18.	Gandhi Vihar Bus Stand	14	1	15

(Fatal Crashes In Descending Order)

NIGHT TIME CRASH PRONE ZONES

25 crash prone zones were vulnerable zones during the night-time. Proper illumination and reflective markings and signages can reduce crashes at these places.

MAP 6.14: NIGHT-TIME CRASH PRONE ZONES – 2021

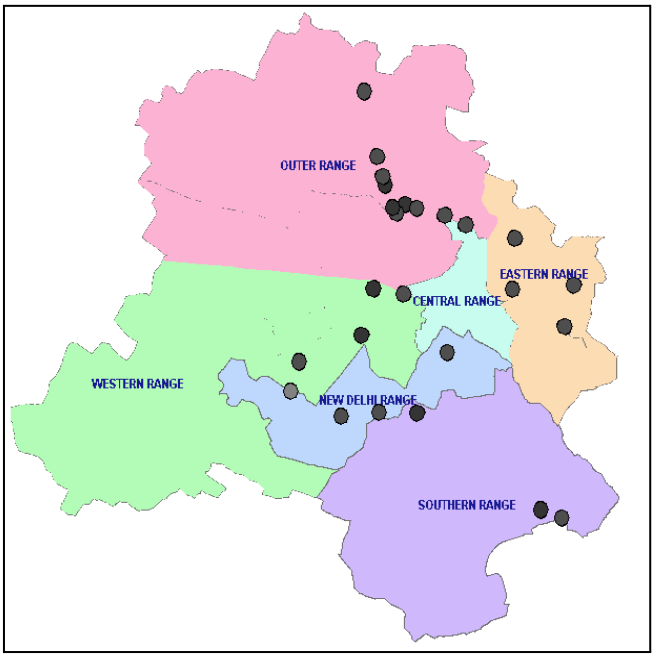


TABLE 6.38: NIGHT-TIME CRASH PRONE ZONES – 2021

S. No.	Crash Prone Zones	Simple Crashes	Fatal Crashes	Total Crashes
1.	Libas Pur Bus Stand	4	6	10
2.	Punjabi Bagh Chowk	5	5	10
3.	Mukarba Chowk	6	4	10
4.	Maya Puri Chowk	4	4	8
5.	Moti Bagh Flyover	3	4	7
6.	Bhalswa Chowk	1	4	5
7.	Okhla More	1	4	5
8.	Swaroop Nagar	4	3	7
9.	Railway Underpass Pul Prahladpur	3	3	6
10.	Zakhira Flyover	3	3	6
11.	Karkari More	3	3	6
12.	Burari Chowk	2	3	5
13.	C-1 Janakpuri	2	3	5

14.	Jharera Village	2	3	5
15.	Khampur Village	2	3	5
16.	RML Hospital	2	3	5
17.	Nangli Poona	2	3	5
18.	Metro Station Sadar Bazar	1	3	4
19.	Jahangirpuri Bus Stand	1	3	4
20.	GTK Depot	0	3	3
21.	Dilshad Garden	0	3	3
22.	Khajoori Khas Pusta Road	0	3	3
23.	Gandhi Vihar Bus Stand	9	2	11
24.	Shastri Park/IT Park	8	2	10

(Fatal Crashes In Descending Order)

CRASH PRONE ZONES TYPES

TABLE 6.39: ZONE TYPE CRASH PRONE ZONES – 2021

S. No.	Zone Types	Number Of Crash Prone Zones
1.	Multi-Level Intersection	25
2.	T-Intersection	16
3.	Road Stretch	8
4.	Intersection	7
5.	Highway Village	7
6.	Metro Station	6
7.	Multi-Intersection	4
8.	Hospital	4
9.	Flyover	3
10.	Exchange Hub	3
11.	Bus-Stand	3
12.	Roundabout	1
	Total	**87**

Note: Multilevel intersections are the intersections which are modified by making flyovers, underpasses, flyover loops at normal intersections e.g. Punjabi Bagh chowk, Dhaula Kuan, Mukarba chowk, etc.

Multi intersections are the junction points of more than two roads or a stretch of single major road having more than two minor roads joining within a 500-meter stretch.

Exchange hubs are the places where there is a facility of changing of different modes of transport like, city buses, TSRs, Gramin sewa, RTVs, interstate buses, e-rickshaw at the same place eg. ISBT, Peera Garhi Chowk, Mukarba chowk etc.

1. The above classification does not completely segregate one category from the other, as there may be some overlapping among various categories for example, some metro stations are also exchange hubs (Peera Garhi Chowk) and some exchange hubs are also multilevel intersections e.g. Mukarba Chowk.

2. The classification clearly shows that intersections of different types are more prone to crashes. Multilevel intersections are the most dangerous.

3. Other crash-prone places are places of high foot fall e.g. bus stands, metro stations exchange hubs, etc. This indicates the lack of proper systematic and planned last mile connectivity of public transport system at these spots:

   (i) These points lack a safe, systematic transport exchange facility (metro buses, buses, TSR, E-rickshaw, etc.) for passengers.

   (ii) These points do not have safe boarding facilities for passengers to board buses/RTVs etc. (People stand, wait and board from the road).

   (iii) There is also lack of proper and enough information about the facilities available for change of vehicles like TSR, E-rickshaw and feeder buses, etc. which causes random movement of people, depending on their visible senses.

CORRECTING CRASH PRONE ZONES

Field officers study and analyze these spots for the causative factors of crashes like:

1. Slopes
2. Embankments
3. Road curvatures
4. Road surface
5. Line of sight visibility
6. Angle of intersections
7. Cuts in central verges
8. Need for FOBs/subways

Preventive measures are required to be taken up by civic agencies.

Field officers send proposals through the traffic engineering cell for improvement in road structure and road design.

The proposals can be short-term having immediate effects like:

(i) Speed calming measures
(ii) Making fresh road markings
(iii) Fixing cautionary and informative boards
(iv) Proper illumination at the spot and fixing of reflective gadgets (CAT eyes, road blinkers, thermoplastic road markings, reflective bollards, etc.)
(v) Nose protection
(vi) Modification or change of traffic movement
(vii) Fixing of railing on road side or on divider

The long-term measures for removing of traffic related problems, (regulation and crashes) from the spot are also identified, which are as follows:

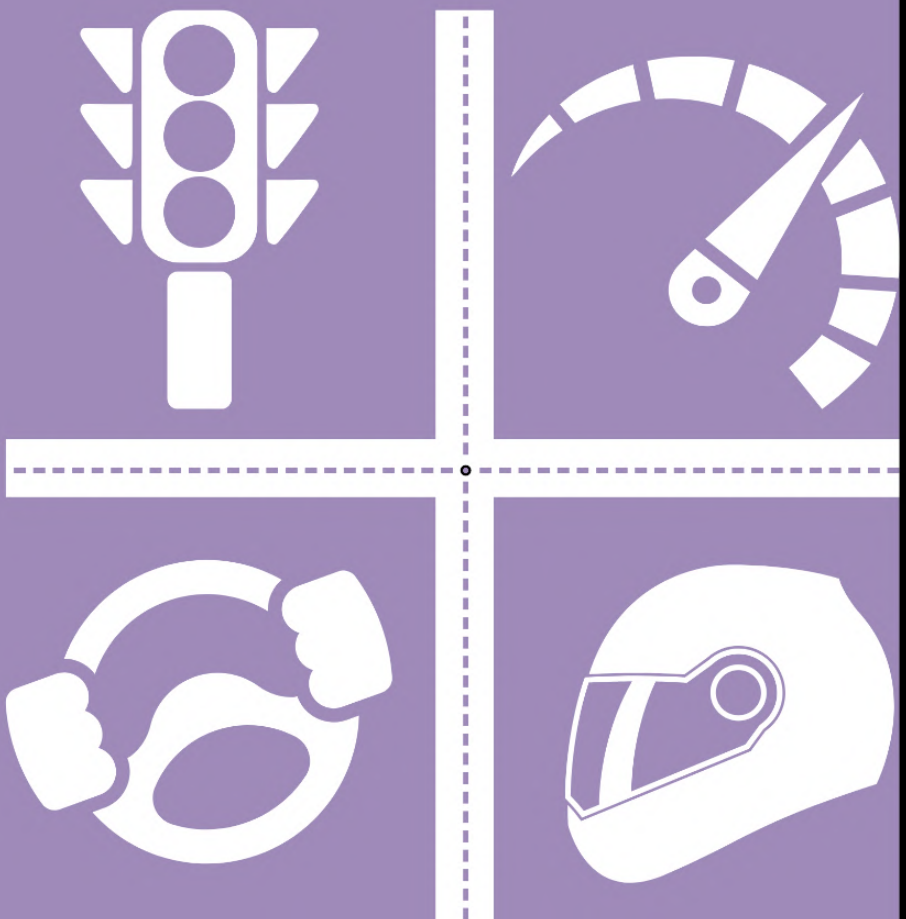
(i) Suggesting underpass/FOB
(ii) Developing footpath for pedestrians
(iii) Proper waiting/ boarding place/ platform for pedestrians
(iv) Developing service lanes
(v) Change in route of buses or other transport vehicles
(vi) Displacing bus stands
(vii) Closure of cuts on roads
(viii) Making an oval round-about, etc.
(ix) Back-to-back 'U' turns

Accordingly, corrective measures listed above are suggested to the concerned authorities. Alongwith the above, enforcement action and road safety activities are also undertaken.

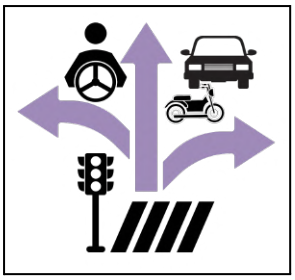
Out of 77 crash prone zones of 2020, 45 spots mentioned did not fall under the above criteria and thus did not figure in crash prone zones of 2021.

7

ROAD CRASH CAUSES



Roads are primarily influenced by three main factors:



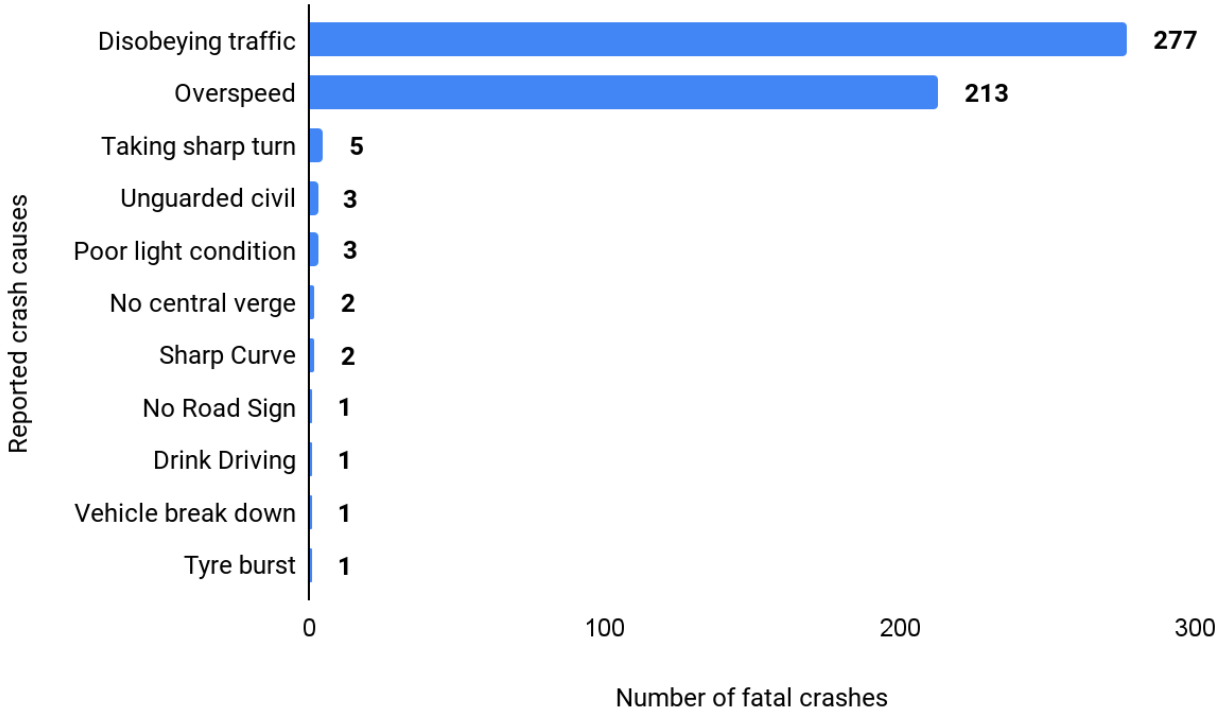
1. Human (drivers, riders, vehicle occupants, pedestrians and cyclists).

2. Vehicle (vehicle design/structure, mass, equipment such as seatbelts or tyres, etc.).

3. Infrastructure/environment (faulty roads, signages, weather conditions affecting visibility, etc.)

Road crash causes were reported for 320 fatal crashes. One or more causes were reported for a crash in some cases. Cause of the crash was not reported for 886 fatal crashes.

FIGURE 7.1: REPORTED ROAD CRASH CAUSES



POOR ROAD CONDITION

Poor road condition refers to ad-hoc or temporary factors/conditions that existed on roads which are not congenial to smooth and safe road traffic and that may lead to a crash. This factor can further be broken down as:

1. Poor light condition
2. Weather condition
3. Unguarded civil work, etc.
4. Slippery road
5. Light reflection from front
6. Encroachment on road

Due to poor road conditions eight crashes were reported. Three such incidents of crashes each occurred due to poor light conditions and due to unguarded civil works.

FAULTY ROAD CONDITION / DESIGN

‘Faulty road condition/design’, refers to factors or conditions which are either part of layout or design or defects in the construction of roads or wear and tear of the infrastructure network over a period of time.

These conditions may arise before or after construction of the road which are not congenial to smooth and safe road traffic and often leads to crashes. These can further be broken down into:

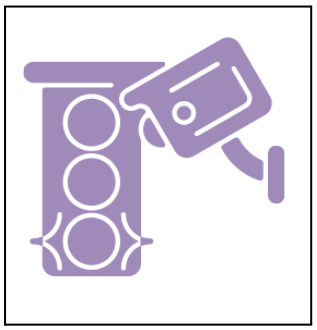
- No central verge, etc.
- Hole or pit on road
- Faulty road design
- Narrow road
- Sharp curve

In 2021 faulty road engineering/design were responsible for five crashes. Two cases were caused due to lack of a central verge on the road, two cases were due to sharp curves and one due to missing of road sign. There were two cases reported due to vehicle mechanical fault. One of them broke down and the other one was due to a tyre burst.

8

ENFORCEMENT& PROSECUTION DATA

ENFORCEMENT AND PROSECUTION DATA 8



A number of countries have achieved sustained reduction in traffic-related injuries and fatalities through effective road safety programmes and legislative changes. The most positive change in road users' behaviour happens when road safety legislation is supported by strong and sustained enforcement, and where the public is made aware of the reasons behind the law and consequences of non-compliance.

Behaviour patterns of road users/motorists have a direct link with the occurrence of a crash. Road safety laws improve road users' behaviour which is a critical factor in road safety, to reduce road traffic crashes, injuries and deaths.

USE OF HELMETS WHILE DRIVING TWO-WHEELERS

As per section 129 of the Motor Vehicles Act 1988, every two-wheeler rider including pillion rider is required to wear a helmet while riding a two-wheeler.

Use of helmets by two-wheeler riders has also been made compulsory in the traffic laws and strict enforcement is being done by traffic police besides creating awareness by its road safety education cell. Yet, a lot of people wear helmets only due to fear of prosecution and not for their safety. The tendency of people not to wear helmets or wear substandard helmets puts the rider at risk of injury.

In 2021, 91,036 riders and 16,724 pillion riders were prosecuted by Delhi Traffic Police for not using helmets.

CLASPING OF HELMET

It's important for all two-wheeler riders to not only wear helmets but fasten them too. Section 129 in The Motor Vehicles Act, 1988 says: "Wearing of helmet (B) is securely fastened to the head of the wearer by means of straps or other fastenings provided on the headgear."

SEAT-BELT USE

Seat-belts have been made a compulsory fitment in four-wheeled vehicles for drivers and co-passengers. Both are required to wear seat-belts, when the vehicle is in motion.

Driving without using a seat-belt is a punishable offence u/s 138 (3) CMVR 1989. But still, many car users and HTV, LGV and bus drivers tend to violate this law. Traffic Police has been prosecuting these violators extensively.

Road safety awareness campaigns are launched from time-to-time and wide media publicity is given to make people aware of the use of seat-belts as a safety precaution.

In 2021, 49,652 people were prosecuted by Delhi Traffic Police for driving without a seat-belt, as against 45,907 in 2020 (Table 8.1).

DRINK-DRIVING

Driving under the influence of liquor/drugs is a punishable offence u/s 185 M. V. Act 1988. Drink driving has proved to be one of the major causes of traffic crashes.

Moreover, around 50 of fatal crash cases are 'hit and run', in which the reason for the crash cannot be ascertained. However, inference may be made that the motorist might have been under the influence of alcohol.

Efforts were made to reduce the number of crashes caused due to drink-driving by increasing the prosecution of drivers driving under the influence of alcohol.

In 2021, 2,831 persons were prosecuted on this account. However, owing to resurgence of the covid pandemic in 2021, action on alcometer test was reduced in view of the guidelines on covid protection and to keep social distancing and to reduce interface with public. Focus was given on prosecution of dangerous driving.

With continuous pressure and strategic prosecution by launching special drives by traffic police till late night, there has been a positive impact in the reduction of road crashes caused due to this factor.

DISTRACTED DRIVING

The use of mobile phone while driving falls under dangerous driving and hence is a punishable offence under section 184 M.V. Act 1988. It has now become a virtual menace for safe driving on Delhi roads.

In 2021, 48,759 people were prosecuted by Delhi Traffic Police for dangerous driving as against 52,072 in 2020.

SPEED

The safe system approach to road safety aims to ensure a safe transport system for all road users.

Under Section 183 of the Motor Vehicles Act 1988, motorists should follow the speed limit as notified for the road.

In 2021, 18 drivers were prosecuted on the spot for overspeeding as against 8,043 in 2020.

Notices on the basis of violations recorded by OSVD cameras and tripod mounted cameras were issued to 35,29,090 vehicles for overspeeding in 2021, as against 79,27,515 in 2020.

LANE DRIVING

The Hon'ble Supreme Court of India has ordered for commercial vehicles to move in the extreme left lane (Bus lane) and disallowed other private vehicles in this lane. The huge traffic volume on all roads require heavy deployment to enforce this rule by traffic police.

Commercial vehicles are impounded under the.'Violation of Hon'ble Supreme Court's Directions' and their permits are suspended for mandated periods to deter them from repeat violation.
Road safety education is imparted to a cross section of the society along with media campaigns, social media outreach and FM radio broadcast.

In 2021, 2594 vehicles were prosecuted for the 'Violation of the Hon'ble Supreme Court's Guidelines' as against 1231 in 2020. 16,480 vehicles were prosecuted for lane violation through Violation of Camera App (VOCA).

TABLE 8.1: PROSECUTION AGAINST VIOLATION OF RULES – 2021

S. No	Vehicles	Not Using Seat Belt	Rider w/o Helmet	Pillion Rider w/o Helmet	Drink Driving	Dangerous Driving
1.	HTV	1176	0	0	24	2083
2.	LGV / MMV	8117	0	0	130	15277
3.	D. Van	147	0	0	53	1073
4.	School Cab	4	0	0	0	1
5.	Chartpvt	370	0	0	5	629
6.	DTC	105	0	0	0	980
7.	Trailer	4	0	0	0	12
8.	School bus	6	0	0	0	20
9.	Roadways	21	0	0	4	601
10.	RTV	104	0	0	2	143
11.	Call Centre	17	0	0	2	5
12.	Taxi	2188	0	0	42	2522
13.	Car/jeep	49652	0	0	628	10696
14.	Tractor	0	0	0	2	30
15.	TSR	0	0	0	106	1317
16.	Sc/Mcycle	0	91036	16724	1771	11373
17.	G-Sewa	57	0	0	14	81
18.	Cluster Bus	177	0	0	3	1455
19.	Inter State Bus	24	0	0	0	147
20.	E rickshaw	0	0	0	43	288
21.	Others	21	0	0	2	26
Total Challan		**62190**	**91036**	**16724**	**2831**	**48759**
Compound Challan		**7400**	**2882**	**375**	**0**	**43**
Court Challan		**54790**	**88154**	**16349**	**2831**	**48716**

ENVIRONMENTAL CHALLENGES FOR PROSECUTION

The sharp increase in vehicle numbers due to increased dependence on personal vehicles in absence of adequate, comfortable and efficient public transport services, not having walking and cycling facilities are worsening air pollution levels in recent times.

Delhi has lost the air quality gains achieved earlier through actions like large scale conversion of public transport buses and three wheelers to natural gas, relocation of polluting industries, and improvement in emission standards for vehicles among others.

Both particulate levels (PM 10 and PM 2.5) as well as Nitrogen Oxides are increasing steadily. During winter, PM 2.5 levels are normally 3 to 4 times higher than the standard and when smog engulfs the city, it can go as high as 7 to 8 times than the standard. This has serious public health consequences.

At present the number of vehicles registered in Delhi is 122.53 lakhs**,** which is distributed over a human population of approximately 203.41 lakhs, indicating a high number of vehicles per lakh human population.

Inferior and adulterated fuel quality, poor motor vehicle maintenance, inadequate traffic and transportation planning are some of the major contributors in increasing vehicular pollution.

Regular measurement of air pollutants and monitoring of air quality, establishment of realistic air quality standards, source inventories, understanding of seasonal variations of air pollutants in the atmosphere are some of the important factors of any pollution management scheme.

To mitigate vehicular pollution, the following environmental challenges are being faced by Delhi Traffic Police for which necessary prosecution action and regulation measures are taken by Delhi Traffic Police:

1,04,369 vehicles were prosecuted for plying without PUCC in 2021.

983 vehicles were prosecuted for carrying construction and allied material without proper covers in goods vehicles in 2021.

2816 diesel/petrol driven vehicles which were 10/15 years old were impounded in 2021.

463732 vehicles were prosecuted for parking of motor vehicles on metal roads in 2021.

1,06,398 vehicles were checked at Delhi borders and 26,526 vehicles were returned for being non-destined goods vehicles in 2021.

7420 vehicles were prosecuted for using pressure horns and modified silencers in motor vehicles in 2021.

TABLE 8.2: PROSECUTION ACTION TO REDUCE POLLUTION

Years	Without Pucc Vehicle	Building Material	10 Yrs And 15 Yrs Old Vehicle	Parking On Metalled Roads	Border Checked/Non-Destined Vehicle		Pressure Horn And Modified Silencer
	Challan	Challan	Impounded	Challan	Checked	Returned	Challan
2021	104369	983	2816	463732	106398	26526	7420

ENFORCEMENT OF TRAFFIC LAWS

If traffic laws are not enforced or are perceived as not being enforced, it is likely that they will not be complied with, and therefore, will have very little chance of bringing about road safety behavior.

Effective enforcement means establishing, regularly updating, and enforcing laws at the national, municipal, and local levels that address the previously discussed (Chapter-8) risk factors. It also includes the definition of appropriate penalties.

Enforcement is necessary for making people follow the road safety laws. Effective enforcement is the key deterrent factor in ensuring road discipline and also increasing public awareness. In 2020-2021, the strategies for prosecution of errant road users were pro-actively made, reducing the number of crashes.

Emphasis was given on selective quality prosecution to maximize the positive impact of enforcement on road discipline.

In 2021 a total of 13,23,556 on the spot challans (1,78,634 compounded and 11,44,922 to court) and 65,69,985 notices (8,02,552 compounded and 41,71,650 to court) were issued and compounding amount of Rs. 9,79,80,500/- and Rs. 71,82,19,300/- respectively, was realized.

The prosecution includes spot challans by traffic circles' staff, notices issued on the complaints received on social media or through traffic helpline, Traffic Sentinel, RLVD, OSVD's and interceptors, etc. (Table 8.3). The amount mentioned in the table excludes the amount collected through fines imposed by the courts for all court challans.

TABLE 8.3: TOTAL COMPOUNDING AMOUNT (2020-2021)

Year	Particulars	From Traffic Circle	From Notice Branch	Total Amount
2020	Compounding Amount	15,87,94,400	1,08,29,28,600	1,24,17,23,000
2021	Compounding Amount	9,79,80,500	71,82,19,300	81,61,99,800

A vehicle violating traffic rules may not be intercepted at the spot, in some instances. These violations are photographed/ video graphed by the police staff as well as the general public and later they are sent to the centralized notice branch of traffic police. These violations are scanned, processed and uploaded in the centralized computer.

Notice under section 133 M.V. Act are generated and issued to the violators /owners of these vehicles. The violators may compound the challan amount before the traffic police, or before the court.

The year 2020 and 2021 were especially more challenging for traffic police because of the spread of coronavirus pandemic since the beginning of the year 2020 and consequential lockdown and requirement of social distancing in all aspects of life. Traffic police adapted to the new realities and tweaked enforcement strategies. Owing to the necessity of social distancing, prosecution drive that requires face-to -face interaction with the traffic violators was suspended and electronic prosecution through "Violation on Camera App", Gantry mounted red light violation detection camera and speed violation detection camera was chosen for traffic enforcement. The installation of camera-based violation detection systems helped traffic police a great deal in enforcement of traffic laws during the COVID times.

While the number of the spot challans increased from 10,99,414 to 13,23,556, the number of notices decreased from 1,27,03,559 to 65,69,985. This primarily happened due to installation of the RLVD camera system at 37 prominent junctions and OSVD camera system at 100 locations. This electronic enforcement is a milestone in the field of contactless prosecution**.**

TABLE 8.4: CHANGE IN PATTERN OF CHALLAN

Year	Total Challan	Court Challan	Compounding Challan	Compounding Amount (In Rs.)
On The Spot Challan				
2020	10,99,414	8,24,143 (75%)	2,75,271 (25%)	158,794,400
2021	13,23,556	11,44,922 (75%)	1,78,634 (25%)	9,79,80,500
Notices Issued U/S 133 M.V. Act 1988				
2020	1,27,03,559	29,26,120	10,47,352	1,082,928,600
2021	65,69,985	41,71,650	8,02,552	71,82,19,300

Maximum challans i.e. 4,63,732 had been issued for 'Improper parking'.

Maximum challans viz. 5,16,018 were issued against two wheelers followed by Cars (3,96,028), LGVs/MMVs (1,05,318) and TSR (1,03,177).

TABLE - 8.5: TOTAL CHALLANS AND COMPOUNDING AMOUNT

Year	Total Challan	Total Compounding Amount
2012	3,298,827	Rs. 495,148,700/-
2013	4,005,633	Rs. 601,510,000/-
2014	4,367,793	Rs 710,497,500/-
2015	3,411,256	Rs 645,320,400/-
2016	4,025,314	Rs. 668,928,000/
2017	6,287,486	Rs. 985,671,300/-

2018	6,704,560	Rs. 1,098,207,500/-
2019	54,72,426	Rs. 782,032,400/-
2020	10,99,414	Rs. 15,87,94,400/-
2021	13,23,556	Rs. 9,79,80,500/-

TABLE 8.6: OFFENCE-WISE PROSECUTION (ON THE SPOT CHALLAN)

S. No.	Offence	2016	2017	2018	2019	2020	2021
1.	Traffic Signal	92,037	167911	216916	230502	48639	40208
2.	W/O Driving License	31,030	46093	61981	76845	25167	28992
3.	Minor Driving	746	1067	1228	1038	77	32
4.	Over Speed	86,771	139985	141052	104450	8043	18
5.	Violation Of Restrictions	62,987	74745	69622	71752	26401	54608
6.	Triple Riding	102,356	156043	198903	162182	8128	7572
7.	W/O Helmet	888,941	1102354	1237745	1036151	94555	91036
8.	W/O Helmet Pillion Rider	396,140	492192	581811	454912	22329	16724
9.	Improper Parking	676,301	1088734	1208608	934699	279830	463732
10.	Dangerous Driving	205,470	234422	243735	225553	52072	48759
11.	Permit Violation	41,141	54580	56973	65018	20407	23584
12.	Drink Driving	28,006	33343	39240	36055	3986	2831
13.	Playing Music	944	1296	1631	2665	1142	389
14.	Pressure Horn	5334	6626	7584	24760	8367	4051
15.	Tinted Glass	37,293	52975	65896	48070	5536	5926
16.	High/Long Load	73,675	199777	128127	14968	2896	1877
17.	Footboard Travel	46	191	322	175	2	3
18.	Stop Line Crossing	242,250	388409	401243	338031	87779	24352
19.	W/O Pollution Certificate.	23,056	33861	46439	81246	69199	104369
20.	W/O Registration	18,894	21694	30681	53489	25637	21367
21.	Defective Number Plate	35,097	80109	94764	74580	6979	18412
22.	Allowing U/A To Drive	40,135	33199	31392	40810	16263	18497
23.	Using Veh Unsafe Conditions.	443	370	347	332	126	154
24.	Using Top Light	11	82	20	34	37	9
25.	Yellow Line Violation	29,633	67204	86992	52776	836	6005
26.	W/O Light/Head/ Indicator/Tail	104,973	328168	277610	231067	22812	15989
27.	Not Driving In Proper Lane	2,811	5262	6034	4431	465	1937
28.	W/O Speed Governor	75	543	442	776	15	25
29.	Stop Without Bus Stop	316	723	762	952	89	221
30.	Park/Wait In Bus Lane	44,850	71255	89508	56422	2620	8888
31.	Wrong Overtaking	2621	7202	6587	6347	662	411
32.	W/O Uniform Dvr/Condtr	15,309	27976	28762	15333	614	83
33.	Over Charge/Misbehave	377	1033	1510	847	37	19
34.	Over Crowd In Pass Vehicle	1,155	12464	19713	16100	4982	6979
35.	Refusal By Taxi/Tsr	782	2462	2605	1377	36	15
36.	W/O Fare Chart/Def.Mtr	6	27	24	34	0	0
37.	One Way Violation	280,888	358200	377158	293698	112170	123796
38.	Carry Goods In Pass Vehicle	1137	2672	4031	3464	1734	1899
39.	Carry Pass In Goods Vehicle	2035	2904	3792	3687	1100	1527
40.	Carry Animal In Goods Vehicle	124	275	404	282	8	22
41.	Honking Horn	12,686	18536	24393	23522	1235	380
42.	Unauthorized Cng/Lpg	68	74	435	576	295	603
43.	Not Using Seat Belt	231,813	626942	650536	508707	45907	62190
44.	Use M.Phone While Drive	4930	15558	16154	18451	10915	26176
45.	Using Pvt. Vehicle As Taxi	2665	5497	14161	22379	11811	12605

46.	Smoking While Driving	1154	4030	3822	1540	1653	2759
47.	Others	169,087	294148	202611	102776	57388	62753
48.	W/O Insurance	18,178	16522	13624	25438	8241	10563
49.	W/O Psv Badge	3888	3933	4132	1884	45	12
50.	Rupd/Lupd(124 Cmvr)	4624	3800	2486	1191	129	150
51.	Using U/A Color Light	24	18	14	52	20	47
52.	On The Spot Challan	4,025,314	6287486	6704560	5472426	1099414	1323556
53.	Driver Arrest	7,363	6295	6731	7180	1030	141
54.	Vehicle Impounded	49,122	52125	53428	51570	9506	10667

TABLE- 8.7: VEHICLE-WISE PROSECUTION – 2021

Vehicles	2017	2018	2019	2020	2021
HTV	512424	418733	271459	33523	37436
LGV / MMV	1114677	1081822	673390	93257	105318
BUS	72152	78914	58559	9199	11491
Cluster Buses	10256	7398	4815	1744	3016
DTC	8106	5652	4318	897	1995
Taxi/Call Centre	352866	333276	264070	56067	59680
TSR	275937	307706	288292	84733	103177
Scooter/M-Cycle	2442224	2848956	2565231	502796	516018
Car/Jeep	1161628	1231757	1025191	268735	396028
E-rickshaw	120299	165952	160564	24645	61712
D-van	144947	144159	104660	15494	17298
G-Sewa	47028	40134	28808	4312	4827
RTV	16304	15635	8008	1397	1919
Other	8638	24466	15061	2615	3641

TABLE 8.8: OFFENCE-WISE VEHICLE – 2021

Offence	1	2	3	4	5	6	7	8	9	10	11
Traffic Signal	68	1012	257	1	32	43	0	1	3	15	36
W/O Driving License	156	1050	301	-	32	4	-	-	-	8	-
Over Speed	-	-	-	-	-	-	-	-	-	-	-
Violation Of Restrictions	7792	15410	1179	-	2	-	111	-	1	-	1
Improper Parking	11615	27535	6985	16	1795	294	18	6	176	791	228
Dangerous Driving	2083	15277	1073	1	629	980	12	20	601	143	5
Permit Violation	2362	2582	28	23	4206	82	8	16	76	499	24
drink Driving	24	130	53	0	5	-	-	-	4	2	2
Playing Music	57	116	6	-	4	-	-	-	-	-	1
Pressure Horn	196	161	14	1	24	-	-	-	5	16	1
Tinted Glass	11	49	14	-	12	-	-	-	-	1	-
High/Long Load	568	1195	112	-	-	-	-	-	-	-	-
Footboard Travel	-	-	-	-	1	-	-	-	-	1	-

Stop Line Crossing	176	816	173	2	43	45	-	2	1	10	8
W/O Pollution Certi.	570	2305	419	8	57	2	-	4		7	3
W/O Registration	518	1387	221	8	178	-	2	-	2	71	4
Defective Number Plate	649	1606	291	-	38	-	-	-	1	13	3
Owner Allowing U/A Major Person To Drive	235	1188	199	3	42	6	1	-	6	36	-
Using Veh Unsafe Condition	9	20	1	-	-	-	-	-	-	-	-
Yellow Line Violation	26	255	149	0	28	22	-	-	3	2	11
W/O Light/Head/Ind./Tail	4677	7494	1243	6	241	3	4	2	9	34	-
Not Driving Proper Lane	194	904	76	2	79	148	1	8	107	11	-
W/O Speed Governor	1	3	-	-	4	4	-	-	4	1	-
Stop Without Bus Stop	-	-	-	2	91	12	-	3	15	15	-
Park/Wait In Bus Lane	5	291	91	-	12	22	-	-	-	4	37
Wrong Overtaking	58	78	-	-	91	38	1	-	15	7	-
W/O Uniform Dvr/Condtr	-	-	-	-	4	-	-	-	-	7	-
Over Crowd In Pass Veh	-	-	-	11	89	8	-	-	-	17	-
One Way Violation	676	5241	1895	4	181	109	-	1	15	57	24
Carry Goods In Pass Veh	-	-	-	2	6	-	-	-	-	-	-
Carry Pass In Goods Veh	328	931	230	-	-	-	-	-	-	-	-
Carry Anml In Goods Veh	4	13	1	-	-	-	-	-	-	-	-
Honking Horn	25	71	3	-	-	-	-	-	-	3	-
Unauthorized Cng/Lpg	-	2	-	-	-	-	-	-	-	-	-
Not Using Seat Belt	1176	8117	147	4	370	105	4	6	21	104	17
Use M.Phone While Drive	100	1578	257	1	25	11	-	-	-	5	9
Using Pvt.Veh As Taxi	0	12	-	1	-	-	-	-	-	-	-
Smoking While Driving	95	159	12	-	2	1	-	-	-	1	3
Others	2822	7609	1742	1	150	56	4	7	7	33	29
W/O Insurance	49	682	125	-	25	-	-	-	1	5	1
RUPD/LUPD (124 Cmvr)	111	35	1	-	-	-	-	-	-	-	-
Using Unauthorized Coloured Light	-	4	-	-	-	-	-	-	-	-	-
Total	**37436**	**105318**	**17298**	**97**	**8498**	**1995**	**166**	**76**	**1073**	**1919**	**447**

(1- HTV, 2-LGV, 3- DELIVERY VAN, 4-SCHOOL CAB, 5- CH. BUS, 6-DTC, 7- TRAILER, 8-SCHOOL BUS, 9-ROADWAYS, 10-RTV, 11-CALL CENTRE)

TABLE 8.9: OFFENCE-WISE VEHICLE – 2021

Offence	12	13	14	15	16	17	18	19	20	21
Traffic Signal	1193	24022	4	637	12676	3	32	80	2	91
W/O Driving License	245	4242	38	1279	17653	25	78	11	38	3832
Owner Allowing Minor To Driving	1	1	-	1	24	-	1	-	-	4
Over Speed	-	18	-	-	-	-	-	-	-	-
Violation Of Restrictions	1	244	321	2	1829	51	2	-	-	27662
Triple Riding	-	-	-	-	7572	-	-	-	-	-
W/O Helmet	-	-	-	-	91036	-	-	-	-	-
W/O Helmet Pillion Rider	-	-	-	-	16724	-	-	-	-	-
Improper Parking	27379	144734	188	63777	153506	57	2375	477	205	21575

Dangerous Driving	2522	10696	30	1317	11373	26	81	1455	147	288
Permit Violation	5511	-	-	5943	-	27	1113	136	936	12
Drink Driving	42	628	2	106	1771	2	14	3	-	43
Playing Music	42	152	-	2	7	-	-	-	-	2
Pressure Horn	75	1222	-	6	2318	-	1	-	10	1
Tinted Glass	52	5774	0	-	-	9	-	-	4	-
High/Long Load	-	-	-	-	-	2	-	-	-	-
Footboard Travel	-	-	-	-	-	1	-	-	-	-
Stop Line Crossing	1559	12397	9	1086	7856	1	31	57	4	76
W/O Pollution Certi.	670	28195	48	921	70992	30	119	10	9	
W/O Registration	354	6729	306	1027	9291	531	160	1	26	551
Defective Number Plate	315	4949	25	1718	8423	5	118	1	6	251
Owner Allowing U/A Major Person To Drive	174	2422	52	1012	10678	26	73	18	42	2284
Using Veh Unsafe Condn.	3	7	-	3	33	-	-	-	-	78
Using Top Light	-	9	-	-	-	-	-	-	-	-
Yellow Line Violation	893	3120	53	1260	147	-	-	34	-	2
W/O Light/Head/Ind./Tail	2010	102	2	110	19	1	4	6	4	18
Not Driving In Proper Lane	19	226	-	2	-	7	7	131	15	0
Stop Without Bus Stop	-	-	-	-	-	6	-	18	59	-
Park/Wait In Bus Lane	534	1061	5	4605	604	-	36	39	-	1542
Wrong Overtaking	3	2	-	4	4	-	9	74	8	19
W/O Uniform Dvr/Condtr	52	-	-	9	-	1	7	1	2	-
Over Charge/Misbehave	3	-	-	9	-	3	-	-	-	4
Over Crowd In Pass Veh	325	-	-	4233	-	590	65	1	4	1636
Refusal By Taxi/TSR	1	-	-	12	-	-	-	-	-	2
One Way Violation	7740	40323	172	8245	57892	20	125	207	34	835
Carry Goods In Pass Veh	163	-	-	1061	-	506	22	-	-	139
Carry Pass In Goods Veh	-	-	-	-	-	38	-	-	-	-
Honking Horn	-	123	-	-	153	-	0	1	1	-
Unauthorized Cng/Lpg	11	565	6	2	17	-	-	-	-	-
Not Using Seat Belt	2188	49652	0	-	-	21	57	177	24	-
Use M.Phone While Drive	516	19145	13	182	4192	9	21	29	1	82
Using Pvt.Veh As Taxi	-	12588	0	0	-	4	-	-	-	-
Smoking While Driving	94	2217	2	37	122	1	5	3	3	2
Others	4222	17358	35	4196	23616	18	251	43	253	313
W/O Insurance	312	3071	14	370	5490	21	19	3	7	368
W/O Psv Badge	1			2		8	1			
Rupd/Lupd (124 Cmvr)						3				
Using U/A Coloured Light	8	34		1						
Total	**59233**	**396028**	**1325**	**103177**	**516018**	**4827**	**3016**	**1844**	**61712**	**2053**

(12- TAXI, 13- CAR/JEEP, 14- TRACTOR, 15-TSR, 16- SC/MC, 17-OTHER, 18- G.SEWA, 19-CLUSTER, 20-PVT. INT.BUS, 21- E. RICKSHAW)

TABLE 8.9: CIRCLE-WISE PROSECUTION-2021

Circle	Compound	Court	Total Challan	Amount
AVC	3641	26087	29728	2038500
BKR	987	3436	4423	514500
BWC	2681	24673	27354	1406000
BRD	5887	21585	27472	3052500
CHP	515	2174	2689	292300
CLC	4508	31554	36062	2370500
DCC	1128	10051	11179	662500
DFC	3810	25157	28967	2163500
DGC	9362	19229	28591	4897500
DWC	2914	20019	22933	1545000
GKC	2166	32299	34465	1411500

GNC	5427	18773	24200	2942500
HKC	2043	23300	25343	1183000
IGI	1589	10086	11675	893400
JPC	1635	28780	30415	861500
KBC	5105	33030	38135	2757500
KJC	1587	17087	18674	874000
KKC	2295	29968	32263	1367000
KMC	6023	19567	25590	3086500
KOT	4649	46879	51528	2470000
KHC	1343	24962	26305	798500
KPC	8070	20346	28416	4285500
LNC	1460	29308	30768	850500
MGP	2745	19086	21831	1467500
MPC	4238	23795	28033	2205500
MRC	3578	26121	29699	1880500
MTC	9737	13570	23307	5026000
MWC	5161	11519	16680	3031500
NJC	2868	24141	27009	1573000
NLC	5185	17783	22968	2943000
NRL	2540	13149	15689	1378000
PAP	2944	8953	11897	1703500
PBC	1550	20445	21995	904000
PGC	10380	19884	30264	5781500
PNC	2447	23771	26218	1331500
PTC	6445	14264	20709	3341500
PTH	343	1581	1924	181000
RGC	2080	23418	25498	1284000
RHN	1415	18754	20169	793500
RKP	4573	27162	31735	2515000
SBC	3022	26105	29127	1901500
SDV	1276	20514	21790	700500
SGV	1244	26748	27992	816500
SHD	2707	43039	45746	1458000
SKT	2780	28620	31400	1499500
SMC	4913	24654	29567	2699500
SPC	3640	20077	23717	1913100
SVC	1577	33726	35303	880000
TMC	1716	7619	9335	969000
TNC	2099	32602	34701	1218600
TRC	1554	4260	5814	920100
VKC	1711	24786	26497	985000
VVC	3341	26426	29767	1954500
TOTAL	178634	1144922	1323556	97980500

VEHICLES IMPOUNDED AND DRIVERS ARRESTED

In 2021, 141 drivers were arrested and 10,667 vehicles impounded. Prime offenders were drivers of cars, scooters and motorcycles. Primarily scooters/motorcycles, TSRs and Cars were impounded.

Most of the arrests (4-wheeler and 2-wheeler drivers) were made in cases of drink-driving, one of the major causes of crashes. Out of 2,831 challans for drink-driving in 2021, 85 percent were against car/jeep drivers and scooter/motorcycle riders.

TABLE 8.10: DRIVER ARREST AND VEHICLE IMPOUNDED-2021

S. No.	Vehicle	Driver Arrested	Vehicles Impounded
1.	HTV	0	177
2.	LGV / MMV	4	203
3.	Delivery Van	1	54
4.	School Cab	0	2
5.	Private Charter Bus	0	384
6.	DTC	0	2
7.	Trailer	0	6
8.	Schoolbus	0	1
9.	Roadways	0	3
10.	RTV	0	54
11.	Call Centre	0	0
12.	Taxi	4	117
13.	Car/Jeep	18	1145
14.	Tractor	0	222
15.	TSR	15	1456
16.	Sc/Mcycle	97	3986
17.	Others	0	409
18.	Gramin Sewa	2	205
19.	Cluster Bus	0	6
20.	Inter State Bus	0	228
21.	Electric Rickshaw	0	2007
Total		**141**	**10667**

In 2021, cars/taxis were involved in committing 176 fatal crashes (14.6%). Two-wheeler riders were responsible for 9.5 percent fatal crashes but as victims they were high on the list (38%) after pedestrians (41%).

'CHASE AND CHALLAN' BY TRAFFIC POLICE MOTORCYCLE RIDERS

Traffic motorcycles are detailed for chase and challan the violating vehicles after intercepting them. The basic aim of this scheme is to bring about road discipline thereby reducing the number of crashes.

In 2021, 126,435 chase and challans were issued. Under this category, car/jeep drivers (24%) topped the list of those prosecuted followed by scooter/motorcycle riders (20.9%). These two categories together make 45 percent of total prosecution by traffic police motorcycles.

TABLE – 8.11: MONTH-WISE TOTAL MOTORCYCLE PROSECUTION -2021 (CHASE AND CHALLAN)

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Jan	11	556	260	1	0	0	0	0	9	13	14	215	2531	2	1553	2127	227	15	1626	31	9191
Feb	4	456	216	0	0	0	0	0	10	11	9	441	2190	1	1740	556	81	3	823	26	6567
March	9	1263	226	2	0	0	0	0	15	19	11	530	2700	2	2150	2254	130	55	2810	55	12231
April	4	498	188	0	0	0	0	0	13	15	9	340	2320	1	1997	658	91	4	1133	31	7302
May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June	2	320	136	0	0	0	0	0	7	13	5	217	1510	1	1209	565	79	2	608	15	4689
July	11	1320	436	3	2	0	0	0	44	21	9	411	2903	2	2908	3923	256	44	2998	86	15377
Aug	18	1728	490	5	3	0	0	2	35	24	11	556	3712	3	3112	4752	309	65	3495	129	18449
Sep	9	1803	312	7	4	0	0	1	25	19	5	527	4212	4	3210	5026	398	89	3945	128	19724
Oct	10	1422	268	5	3	0	0	1	22	23	2	352	3195	2	2510	3713	210	56	2868	78	14740
Nov	12	1245	225	2	6	0	0	0	0	72	82	253	2789	4	1371	2248	290	20	1565	26	10210
Dec	5	1125	174	3	4	0	0	0	5	14	76	316	2293	2	1525	608	525	12	1240	28	7955
Total	**95**	**11736**	**2931**	**28**	**22**	**0**	**0**	**4**	**185**	**244**	**233**	**4158**	**30355**	**24**	**23285**	**26430**	**2596**	**365**	**23111**	**754**	**126435**

(1-HTV, 2-LGV/MMV, 3-DELIVERY VAN, 4-SCHOOL CAB, 5- CHART.PVT,6- DTC, 7-TRAILER, 8- SCHOOL BUS, 9-ROADWAYS, 10-RTV, 11-CALL CENTRE, 12-TAXI, 13-CAR/JEEP, 14-TRACTOR, 15-TSR, 16-SC/MC, 17-GRAMIN SEWA, 18- CLUSTER BUS, 19-E. RICKSHAW, 20-OTHER)

TRAFFIC SENTINEL SCHEME

Delhi Police launched the Traffic Sentinel Scheme in 2015 for the general public. Aim of this scheme was to improve public participation in reporting certain specified violations to traffic police.

This scheme empowers citizens by providing an easy to use platform to report certain specified offences to traffic police.

11 types of traffic violations are reported through the 'Traffic Sentinel' scheme. Sentinels earn credit points for each violation reported. Driving against the flow of traffic, yellow line violation, parking on footpath, triple riding, defective number plate, without seat-belt, without helmet rider/pillion rider, stop line violation, red light jumping, dangerous/zig zag driving and using mobile phone while driving constitute such violations.

The 'Traffic Sentinel' scheme is accessible through the existing "Delhi Police-Tatpar" App. The scheme was revamped and re-launched with new features and capabilities in 2017. 17,541 notices were issued by the 'Traffic Sentinel' App in 2021.

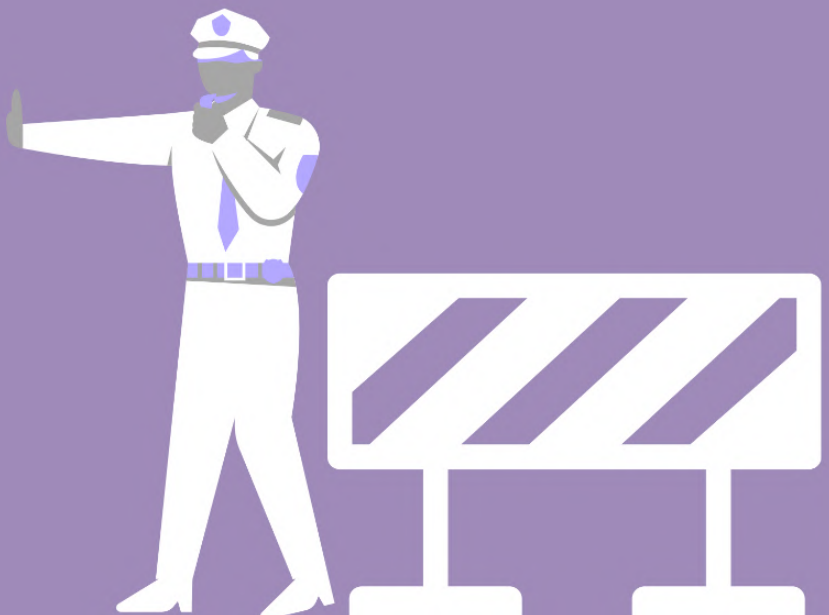
TABLE 8.12: TRAFFIC SENTINEL NOTICES STATEMENTS-2021

S. No.	Violation	No. Of Notices
1.	Parking On Footpath	5,206
2.	Violation Of Stop Line	364
3.	Violation Of Traffic Signal	6
4.	Yellow Line Violation	2
5.	Using Mobile Phone While Driving	4
6.	Triple Riding	358

7.	Defective Number Plate	1,576
8.	Not Using The Seat Belt	16
9.	Without Helmet	7,683
10.	Driving Against The Flow Of Traffic	2,312
11.	Dangerous Driving	14
Total		**17,541**

9

ROAD SAFETY INITIATIVES



Despite continuous prosecution drives, particularly against those violations which have bearing on road safety, the crash rate is still higher. It shows that there is a need to address the issue of road user behaviour. Delhi Traffic Police, for this purpose has been engaged in promoting road safety education especially in schools and amongst commercial drivers and DTC/cluster bus drivers, thereby inculcating a good road culture among citizens. Wide media publicity and campaigns are being conducted to sensitize the public about the consequences of traffic violations. Various methodologies have been adopted to spread awareness about road safety such as forming road safety clubs, launching public outreach campaigns, outreach through social media 'Facebook', 'Twitter' and 'WhatsApp' etc.

ROAD SAFETY CELL

The educational wing of the Delhi Traffic Police was formed in 1972 with a view to educate road users regarding proper and safe use of road and transportation. The wing is technically equipped to develop human resources responsive to the public. Road safety cell is working untiringly to increase the awareness of road users to cope with various problems related to road and transportation i.e., traffic congestion, crashes, increased travel time, etc., through various initiatives such as:

1. Road safety awareness sessions and workshops for different categories of road users through both offline and online interactions with the public.

2. School road safety awareness campaigns comprising awareness workshops and competitions based on road safety related topics for students such as painting, quiz, essay, debate, mime act, poem writing and recitation, *nukkad-natak*, innovation with waste material, slogan writing etc.

3. Workshops on safe and defensive driving for school bus drivers**.**

4. Workshops and seminars for teachers or representatives from school who in turn teach students.

5. Visit to traffic training parks by school students wherein they are imparted practical know-how about the safe use of road and transportation, significance of road signs and markings and traffic signals, and two-wheeler safe riding for senior students.

6. Designing of road safety literature.

7. On-road campaigns to educate motorists, pedestrians at intersections by distributing road safety literature and making announcements through the PA system.

8. Display of road safety exhibition vans at prominent locations to sensitize the public about the importance of obeying traffic rules through audio messages and video clippings/movies on road safety.

9. Road safety awareness summer/winter camps for school children.

10. Road safety march, street plays and film shows.

11. Health check–up camps for drivers including commercial drivers.

12. Affixing of reflective tapes on cycles to ensure their visibility at night.

TRAFFIC TRAINING PARKS

Traffic training parks have been established with a view to impart practical education to different categories of road users including school children. These parks simulate actual road conditions; have miniature road signs and vehicles to teach children about various road safety rules and regulations. Following are the four Traffic training parks where such activities are being carried out:

1. T.T.Park Punjabi Bagh
2. T.T.Park Roshanara Bagh
3. T.T.Park B.K.S Marg
4. T.T.Park Bal Bhawan

In addition to interaction with school children, the road safety cell also organizes regular road safety awareness programmes/workshops for other road users such as commercial vehicle drivers, cyclists, two-wheeler riders, private four-wheeler drivers, drivers of govt. organizations, slum/rural dwellers who are often easy victims of road related disasters.

TARGET GROUPS

Keeping in view the vulnerability, road users have been divided in different groups so as to impart road safety education in an effective and result-oriented manner:

1. School children
2. Commercial vehicle drivers
3. DTC/cluster bus drivers
4. Armed forces' staff and drivers
5. Govt./Pvt. organizations
6. TSR/cab drivers
7. General public
8. Slum dwellers
9. Cyclists
10. Public Sector employees
11. Factory workers
12. NCC volunteers
13. Traffic marshals

ROAD SAFETY ACTIVITIES FROM 01.01.2021 TO 15.06.2022

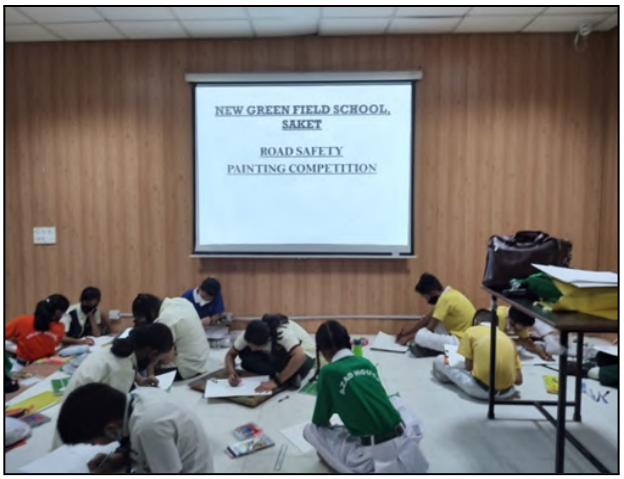
1. **Road Safety Awareness Program for Commercial Vehicle Drivers**
   Road safety awareness consisting of lectures and short videos were organized for commercial vehicle Drivers in association with Sanjay Gandhi Transport Nagar and Burari Transport Authority. The awareness program was attended by 1877 Drivers in 49 Sessions.

2. **Road Safety Awareness and Covid-19 awareness sessions**

Pedestrians were sensitized on the correct use of crossovers while cyclists were sensitized about traffic rules. To ensure the visibility of cycles and electric rickshaws at night, reflective tapes were affixed on them. Staff from Road Safety Cell along with Circle staff conducted such campaigns at 1,138 locations across Delhi in which 31,99,541 people were sensitized from 01.01.2021 to 15.06.2022. Covid-19 awareness on use of masks, hand washing, social distancing and vaccination was also conducted. Vehicle drivers were urged to maintain distance on roads.

3. **Road Safety awareness sessions for school students**

Staff from Road safety Cell organized road Safety awareness sessions in both online/offline modes for school students to educate them about traffic rules & regulation, advantages of Tatpar application and women safety. They were also informed about women helpline numbers. Covid-19 awareness on use of masks, hand washing, social distancing and vaccination was also conducted. A total of 1,089 Sessions were conducted in which 82,027 students and 6,781 teachers/ parents were educated on these aspects of safety.



4. **Road Safety Exhibition Van**

Road Safety Exhibition Vans were displayed at 920 locations (including Crash Prone Zone Area, Railways Stations, Markets, Major Metro Stations and outside of Malls) in Delhi in which a total of 6,48,330 public persons were sensitized through 2,657 film shows, audio video display and announcement through PA system about the importance of obeying traffic rules. Banners on lane discipline, advantages of Tatpar application and women safety were displayed. People were also informed about women helpline numbers through exhibition vans.

10

WAY FORWARD

Road traffic injuries pose a global threat to health and the development of societies. Road traffic injuries are a major but neglected global public health problem, requiring concerted efforts for effective and sustainable prevention. Road transport and infrastructure is one of the most complex systems that people have to deal with on a daily basis.

Road infrastructure is strongly linked to fatal and serious injury causation in road collisions, and research has shown that improvements to the road infrastructure are critical in improving overall road safety. When safety is taken into consideration during the planning, design and operation of roads, substantial contributions can be made for reducing traffic deaths and injuries.

The aim is to create a safe road environment, rather than placing the main responsibility for safety on users who fail to deal with the intrinsic dangers of the roads.

The ideal method to get the desired results is to provide the conditions/ atmosphere to the users which make them follow rules/paths willingly instead of forcing them to follow rules in addition to a safe and conducive environment.

LAND USE AND TRANSPORT PLANNING

Multimodal transport and land-use planning is important for implementing a safe transport system. The Safe System approach to road safety aims to ensure a safe transport system for all road users.

Prioritizing the needs of vulnerable road users includes recognizing the importance of the built environment while making policy and planning decisions. Some of the solutions lie in appropriate modifications to the physical road environment and setting up a supportive policy framework rather than focusing only on human behavior as the primary cause of road traffic crashes.

PEDESTRIAN SAFETY

What we presently have for the pedestrians:

In large cities like Delhi and Mumbai nearly 35-50% trips are pedestrian trips[8]. However adequate pedestrian facilities such as foot paths, safe crossing facilities are not present in most Indian cities. In a few instances when they are present, their poor maintenance and poor quality of construction make them unusable. As a result, pedestrians are forced to share the road space with motorized vehicles and to cross the roads where there is no safe pedestrian crossing.

This highlights the poor condition of the footpaths and refuge islands and road crossing facilities provided for pedestrians on most roads of Delhi.

The footpaths are missing on many of the main arterial roads of Delhi and wherever provided it's more or less nominal. In most parts of Delhi, they are non-continuous, encroached upon, un-friendly, and poorly maintained.Some examples are shown in the following pictures.

[8] Jha, Abhaya, et al. "Analysis of pedestrian movement on Delhi roads by using naturalistic observation techniques." *Transportation research record* 2634.1 (2017): 95-100.

PEDESTRIAN DIFFICULTIES

OPEN SEWAGE ON FOOTPATH

UNUSABLE FOOTPATH

BUSHES ON FOOTPATH

LACK OF CONTINUOUS FOOTPATH

The crashes caused while crossing the roads, accounts for 29percent of pedestrian crashes, highlighting the need for attention to pedestrian crossing facilities.

With increase in human population and vehicular volume, there is a struggle for space and mobility on the roads. With roads getting wider to accommodate more vehicles, the road crossing is becoming more and more vulnerable. The normal option for preventing such crashes is by providing signaled crossing for the pedestrians. This is done by stopping the vehicles for some time (a few seconds or a minute).

The arrangement of making FOB with guided paths can be preferred over pelican signal crossing or red light crossing for pedestrians on NHs and high-speed corridors.

According to the safe systems approach at grade crossings are considered a viable method as part of safe road crossing design.

ACTUAL PATH OF NEED

ADVANTAGE LOST: PEOPLE PREFER

The extended landing point into the complex platform shall reduce the conflicts on the service road**.** These small one-time efforts in construction can reduce numerous conflicts, and such small improvements can contribute in large scale reduction in congestion of traffic on roads.

PROPOSED EXTENSION

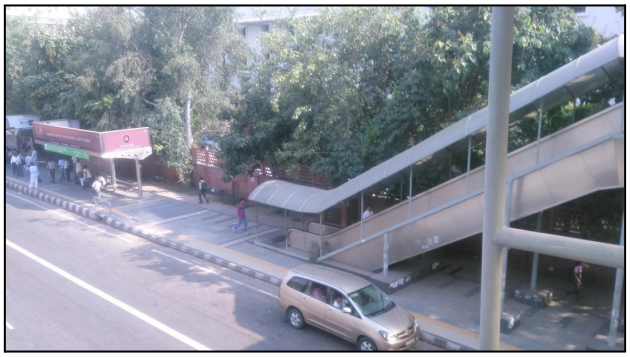
Unplanned ramp landing on the opposite side of the bus stand or place of footfall is of no use.

NO ESCALATORS AT BUS STANDS

The FOB or skywalk to be designed from the point of view of the user.

To provide maximum facility to the user, having potential to attract people and features to increase comfort.

It may include architectural design to provide facility at the right place eg having escalator ramps, double storey escalators.



STRAIGHT RIGHT FROM THE EXIT POINT OF VEHICLE (LIKE BUS STOP, METRO STATION)

CONNECTED BY SKYWALKS/GUIDED PATHS

LIFTS AND ESCALATORS INCREASE THE PROBABILITY OF FOB USAGE AMONG PEDESTRIANS



HAVING SIDE GRILLS TO PREVENT PEDESTRIANS LANDING ON ROADS

It is important to set priorities and improve planning the infrastructure networks in an efficient manner. Utmost importance should be given to pedestrian safety, to secure these pedestrians We need to segregate them from other road users. The simple steps that can be taken to achieve this are:


ON NATIONAL HIGHWAYS OVERHEAD PEDESTRIAN BRIDGES ARE RECOMMENDED

The NHs pass through villages and other heavily populated areas. These roads are wide six to eight lanes and have vehicles moving at high speed. The local people have to cross these roads for their daily needs and become victims of high speed and heavy vehicles. To reduce crashes due importance should be given to the needs of local people and right arrangement should be made to cross the road.

On the roads which are not elevated corridors, more table top crossings should be provided for crossing of pedestrians. If constructing FOB is not possible, a proper pelican signal should be provided to cross the roads. Footpaths should be properly developed and should be separated from the road by grills to prevent pedestrians from coming onto the road.

At the intersections like Peera Garhi, there is movement of thousands of people on the carpeted area of the intersection for inter-changing public transport at different arms of the intersection. Their movements on the roads create conflict with the vehicles. This makes them unsafe and also obstructs vehicular movement. The

encroachment of footpaths by vendors needs to be discouraged/removed**.** Designated spaces should be provided for services.

Separate bus bay to be provided at all the bus stands extending the road sideways. The bus bays should be long enough to accommodate two to three buses (as per the requirement of point) and should be provided with grills having gaps only at the position of gates at the bus stands (as provided in case of metro stations having high rush).

All the major intersections like Peera Garhi, Singhu border, Mukarba chowk, ISBT, Dhaula Kuan, etc needs to be individually designed according to the composition of public transport (DTC, cluster buses, roadways buses, gramin sewa, RTV, TSR, rickshaw, e-rickshaw, etc.) and pedestrian traffic.

A separate halting space for other public transport vehicles like TSRs/gramin sewa to be provided. A railing can be provided to separate them and make them stand in a single queue.

Providing more information of modes of transport to the users at the exchange junctions like ISBT, Dhaula Kuan, Mukarba chowk, etc., so that people get information of their next mode of transport at the exchange hub. This information can be in the form of: Route maps of the DTC/cluster buses like that of the metro route maps to be displayed on the bus stand, at least at the major intersections and transport hubs. Sufficient number of direction boards for the passengers to provide information regarding availability of next connecting mode of transport or to reach nearby important places safely through footpaths and foot over bridges.

The pedestrian infrastructure, FOBs/subways/footpaths/halting-space should be designed and located so as to prevent the pedestrian movement on the carpeted area of the arterial roads, or reduce it to a minimum. This shall allow the free flow of vehicles on these roads reducing the conflicts of pedestrians with the vehicles and hence ensuring the safety of all vulnerable road users.

TWO WHEELERS SAFETY

There are around 82 lakh registered two-wheelers in Delhi. Their percentage share is around 67percent of the total number of registered vehicles in Delhi. The percentage share is increasing every year.

Two-wheelers have been victims in around 38.1 percent of fatal road crashes in 2021. Two-wheeler riders were victims in 459 fatal and 1937 total crashes in 2021.

The percent share of two-wheeler as victims is given below:

TABLE 9.1
PERCENTAGE SHARE OF TWO-WHEELER AS VICTIMS

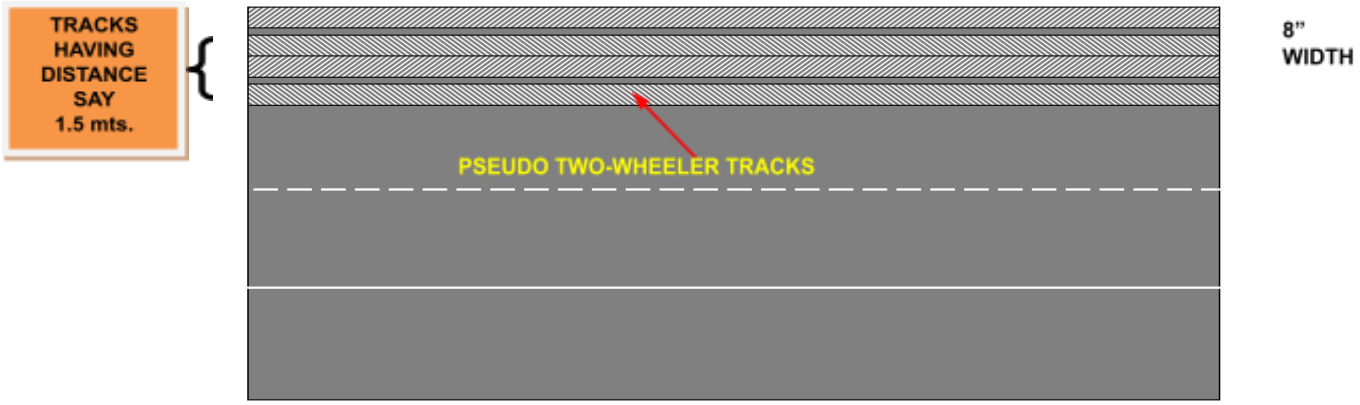
Year	Fatal crashes	Total Fatal crashes	Percentage
2018	562	1657	33.9
2019	487	1433	33.9
2020	432	1163	37.1
2021	459	1206	38.1

There are very few safety gadgets available for the two-wheeler riders. Though a lot of research work has been done for the safety of the passengers in the cars, no solid protection is available for the safety of two-wheeler riders, except the helmet.

PSEUDO TWO-WHEELERS TRACK

Safety of two-wheeler riders have always been a cause of concern as, till now, no complete segregation for two-wheelers has been designed on the roads and no definite lane has been ear-marked for two-wheelers. On the left lane they are at the mercy of heavy commercial vehicles, while on the right they have to compete with high speeding vehicles and in the middle lane they are exposed to the lane changing vehicles. To secure the two-wheeler riders, there should be segregated pseudo two-wheeler tracks. These tracks can be made with thermoplastic strips.

PSEUDO-TWO WHEELER TRACKS MADE OF THERMOPLASTIC STRIPS



*The dedicated two-wheeler track should only be wide enough to accommodate the safe movement of two motorcycles/scooters at a time (simultaneously), without brushing each other but should not accommodate the axle length of four-wheeled vehicles so that four-wheelers do not dare venture into the two wheeler track.

Where there is heavy two-wheeler movement or there are more two-wheeler crashes (e.g. Two-wheeler crash prone zones), such a track can be placed on the extreme right lane of a three or four lane road. These tracks shall encourage the disciplined movement of two-wheelers in two designated lines. It can first be tested in small sections of two-wheeler crash prone zones like Madhuban Chowk underpass near Majnu ka tila on Outer Ring Road, etc.

IMPROVING ROAD CONDITION

Road design, road environment, road marking and road furniture are important for facilitation of road users and smooth and safe movement of traffic. While the road designs and environments assist the driver in moving the vehicle on road safely; the road sign, road marking and road furniture, if properly placed, helps in preventing the crashes and reducing the severity of crashes. Road designs that control speeds seem to be the most effective crash control measure.

Most of the roads in Delhi (except in the NDMC area) score poorly for these primary features. All major arterial roads should be surveyed. The following things can be done to improve the safety on the roads:

PROVIDING NOSE PROTECTION TO ALL THE PROTRUDING NOSES ON ROADS

Fixing reflectors at the start of all the dividers. Marking lanes with reflective paints on all the roads. Fixing of cats eye on these lane markings as well as on the sides of the road.

FIXING REFLECTORS FOR LANE DRIVING AND SAFETY DURING NIGHT

The road markings (lanes and stop lines, etc.) should be repainted after regular intervals (every three to six months) because just in a few months when it gets dull the reflective blaze is lost and its benefit during night is lost (when it is needed more).

Similarly, vehicles from halting arms of the signaled intersection encroach into the common area of intersection without a stop line, which becomes the cause of congestion or crashes. These vehicles can't be prosecuted manually or using technology taking photographs as it does not fulfill the legal requirement.

REFLECTORS/REFLECTIVE PAINTS ON SIDE RAILING, POLES, AND TREES OF ROAD


PROVIDING SIDE PROTECTION/RAILING ESPECIALLY ON BANDH ROADS OR ROADS ALONG WITH DRAINS/CANALS

Road markings are helpful in changing the lane in advance to avoid the conflict near the bifurcation point. e.g. for loops near Dhaula Kuan or AIIMS.


Illumination of roads should be given importance particularly in outer and rural areas. Many stretches of NHs, Outer Ring Road and other arterial roads remain dark and become the cause of a crash. Illumination is important in preventing pedestrian and cyclist crashes.

Cautionary signs to be fixed well before schools, speed calmers, cuts in divider merging/diverging. Appropriate speed calming measures to be made as per the requirement of the road.


SPEED BREAKERS ON DIVIDERS AND RELEVANT LOCATIONS

Pseudo speed breakers before intersections, left turn start of divider or nose of flyover, at the place of merging traffic be provided.

Speed calmers on major roads should be preceded and followed by the installation of pseudo speed breakers. It acts as better warning agents than display boards.

SPEED CALMER/MASTIC STRIPS TO BE PLACED

Speed calmer/mastic strips to be placed on minor roads just before it meets the major road**,** it stops the random entry of small vehicles into fast and heavy movement of vehicles on major roads.

Pseudo two-wheeler tracks can be made for safe and disciplined movement of two-wheelers on major roads, prone to crashes.

Unnecessary cuts on road medians should be identified and closed.

The merging of minor roads, having movements of two-wheeler and slow-moving vehicles should be studied and planned to avoid direct merging into highways and other major roads.

Planning of intersections needs to be done as per the composition of the vehicular movement. Experts can be involved for the segregated safe movement of these vehicles.

Slow moving vehicle drivers and two-wheeler riders prefer to take shorter wrong turns to cross the road, if 'U' turn or the proper road crossing passage is far away (more than a km.)

All the major intersections should be made a little elevated with roughened surfaces to slow down vehicles at intersections.

Besides these roads can be improved by fixing overhead boards on NHs and major (six/eight lane roads) showing speed limit and vehicles permitted in that lane.

These boards should be fixed on the central verge in the interval of one km distance.

PROVIDING INFORMATION BOARDS ON THE CENTRAL VERGE ON NHs

The repair and construction work on road and road side should be well protected with sufficient sign boards, reflectors, illuminators and deployment of appropriate number of volunteers for managing traffic.

There should be a strict time limit for these repair work**.** The relaying of roads by the repairing authority should be made essential. It is found that many road owning agencies like Jal board, sewer repair units, leave the roads uncarpeted even after completion of work.

There should be coordination between different agencies which dig the road or road side for fixing pipes (water, sewer or gas), laying cables or repairing or upgrading footpath or divider, etc. All the repairs should be done within a minimum time.

Repairing/re-fixing of worn-out speed calming measures like mastic strips, rumble strips, pseudo breakers and fixing of cats eye should be done at regular intervals (in around six months) as these get worn out and become ineffective.

Regular survey of road by road maintaining agency for improvement and repair on the above-mentioned points to be done.

Area incharge of road maintaining agency to be made responsible for keeping the road standards up to the mark.
Yearly road safety audit to be done on all major roads.

USE OF TECHNOLOGY

In the digital world many things are possible easily once our data is in digitized form. There is an urgent need of digitization and integration of all the vehicular as well as driving license records data at all the authorities.

The vehicle and the driver both are free to move anywhere in India hence can be involved in traffic violation or a crash anywhere in India. This data should be centrally maintained and can be accessed by officials from anywhere in India to ascertain the previous traffic violation and conviction in crashes.

The driving license data can be linked to the Aadhaar card to remove the duplicity. It is found that the drivers are using more than one driving license issued from different authorities and their previous violations and involvement in crashes cannot be established.

Fixing of GPS devices with display screens can be made compulsory in all commercial vehicles. This device will be help in:

1. Checking the speed of the vehicle.
2. Checking entry conditions on roads.
3. Identifying the vehicle involved in crashes/crime.
4. It can act as a medium to provide information to the user vehicle regarding entry condition/speed warning, jam condition and also his prosecution details.

Road-wise speed limit data and entry condition data can be made available to drivers through GPS devices. It can give information, warning, can act as speed governor or even prosecute based on its scientific information if the speed exceeds the limit or it enters in no entry area.

INTELLIGENT TRAFFIC MANAGEMENT SYSTEM

Delhi Police signed an MoU with Centre for Development of Advanced Computing (C-DAC) to operationalise the ITMS project. The project is aimed at improving mobility, discipline and road safety for Delhi by using technology based traffic solutions and enforcement. This project is expected to play a critical role in congestion management, lane discipline, adaptive traffic control signal, controlling over-speeding, etc. through optimized signal timings based on real time intelligent inputs by using GIS map-based

modeling, machine learning and artificial intelligence. The new system will facilitate quick movements of emergency vehicles like ambulances and fire tenders.

Delhi Traffic Police has installed 125 3D Radar based Overspeed Violation Detection system (OSVD Cameras) at 66 locations in Delhi and Red Light Violation Detection System (RLVD) at 43 junctions. With the help of OSVD and RLVD systems, the traffic police is able to prosecute violators regardless of the day or night as deploying manpower for interception and challans is limited during odd hours of the night. The evidence based non interventionist approach creates a much deeper impact and helps in enforcement of traffic regulations without hindrance.

In the phase II of the project, additional RLVD and OSVD cameras will be installed under ITMS project.

ALCOHOL DETECTION SYSTEMS

Internationally, drink-driving is considered to be a crucial road safety issue. An alcohol ignition interlock device, a breath alcohol analyzer, can be connected to the ignition of a vehicle, which cannot be started unless the driver passes the unit's breath alcohol tests. It can be a major deterrent to drinking and driving.

SUGGESTIONS FOR CRASH PRONE ZONES

The number of road crashes occurring in a zone depends on its structural design, the type of vehicles moving through it, and the time-period of the day when more road crashes take place. Accordingly, corrective and preventive measures are required to be taken. There is no clear segregation of different types of traffic moving through a crash-prone zone. However, the crash-prone zones can be classified based on the type of victim/ offending vehicle involved in the road crashes. Accordingly, steps can be taken to prevent road crashes.

Following are some of the steps that can be taken by the agencies to prevent road crashes in the crash prone zones.

PEDESTRIAN CRASH PRONE ZONES

These are places which lack safe pedestrian facilities for movement i.e. footpaths, road crossings (FOBs, skyways) and boarding places (safe platform for waiting and boarding a Bus/TSR, Gramin Sewa, etc.). Such facilities should be provided for safe crossing of pedestrians.

Speed is one of the main contributing factors in the occurrence of a crash resulting in fatality, particularly on the National Highways and other major arterial roads, thus speed needs to be slowed down with provision of speed calming measures.

Table top with a speed calming surface can be constructed in the common area of the intersection to control and reduce speed.

Fixing of grills with adequate height on the central verges at places where crash of pedestrians occurs while crossing the road. This can be undertaken after making safe passage for pedestrians to cross the roads.

The place where speed calming measures have been provided needs to be adequately equipped with proper sign boards and reflectors which should also be properly illuminated.

The road markings and signages should be visible round the clock.

Repairing/re-fixing of worn-out speed calming measures like rumble strips, pseudo speed breakers and fixing of cats eye should be undertaken periodically by the agencies.

Location of FOB and its entry/exit point should be such that it is easily accessible to pedestrians, so that they make optimum use of the same.

Those FOBs/subways which are not being used should be modified / improved/ relocated, so that it is optimally used. Escalators can be provided to make it more effective.

There should be proper and systematic placement of public transport facilities like auto rickshaws, city buses and interstate buses at the multi modal hubs like ISBT or Dhaula Kuan, Mukarba chowk, Peeragarhi chowk so that passengers can interchange easily (even with luggage or children) and safely cross through proper/safe platform, without risking their lives.

Planning of auto rickshaw stands and bus stands should be properly undertaken so as to avoid halting and boarding/deboarding at the end/start of flyover. Such places become prone to crashes and add to traffic congestion.

Boarding/deboarding in the interstate buses from the road, outside the ISBT bus stand, needs to be stopped and enforced as the waiting place of such passengers on the road is found to be a cluster point of crashes.

More number of FOBs/subways/small underpasses should be provided on six and eight lane roads, NHs for safer crossing on such roads for pedestrians, two–wheelers and slow-moving vehicles of local residents.

TWO-WHEELER CRASH PRONE ZONES

The merging of minor roads, having movement of two-wheeler and slow-moving vehicles need to be studied and planned to avoid direct merging into highways and other major roads. Speed calming measures should be provided.

Slow moving vehicles and two wheelers prefer to take a short cut by moving in the wrong direction to cross the road, if 'U' turn or proper road crossing passage is far away. Such wrong side movement on the main road can be prevented by making underpasses or providing service roads.

Conflict points in traffic movement should be detected and should be made safe, for example, at such places like:

Merging points of traffic at the end of the flyover

Small road stretches between two flyovers that have common entry – exit into and out of the fly over.

Perpendicular movement of traffic/pedestrians at the end of flyover or flyover loop.

Pseudo two-wheeler tracks can be tested for safe and disciplined movement of two-wheelers on major roads at two-wheeler crash prone zones.

A road safety initiative for two-wheeler riders can be started at state level involving all the stakeholders. It would be like pulse polio immunization programme which shall include free distribution of ISI marked standard helmets to all persons (rider/pillion rider/male/female) prosecuted for without helmet.

Free-to-use helmets can also be provided at important junctions/places/metro stations, etc., with the use-and-return policy.

If this becomes successful its cost would be less than the loss borne due to two-wheeler crash injuries/deaths.

For a helmet to be effective it needs to be of standard quality (ISI mark) to provide maximum protection to the head.

Motorcyclists wearing standard-approved helmets have a lower risk of head and traumatic brain injury than those not wearing helmets.

Proper fastening of the helmet is also important for a helmet to be fully effective.

CYCLIST CRASH PRONE ZONES

Cyclists become victims in road crashes on the following accounts:

Lack of NMV lanes on straight stretches of road.

Lack of safe road crossing facility on wide roads near/at the intersection.

Darkness during night (where there is poor illumination) as cycles do not have light sources of their own.

To prevent such road crashes illumination on roads should be given importance, particularly in the outer and rural areas and places where there is heavy movement of cycles. Many stretches of NHs, Outer Ring Road and other arterial roads remain dark and become the cause of crashes.

Distribution of reflective stickers/jackets should be undertaken in cyclist crash prone zones. It can be distributed during evening peak hours in corridors having heavy cyclist movement, so that it goes to actual users.

Planning of intersections should be carried out as per the composition of the vehicular movement, for example, at Shastri park red light, importance may be given to the movement of the cycles, cycle-rickshaws and slow-moving vehicles. Traffic experts can be involved in suggesting measures in controlling crashes involving cyclists.

Conflict points in traffic movement should be detected and corrected by the agencies to make them safe for all.

CRASH PRONE ZONES OF HIT AND RUN CASES

CCTV cameras should be installed at critical points to identify the motor vehicles at fault.

CATS ambulances and PCR vans halting points can be stationed near important points to check hit and run cases and for immediate post-crash care.

HTVS CRASH PRONE ZONES

Effective and stringent prosecution of the offenders along with the road safety education of the truck drivers and vulnerable road users residing in the area near the crash-prone zone. Conflict points in traffic movement need to be identified and detected to make them safe.

Speed calmer/mastic strips to be placed on minor roads just before it meets the major road. It stops the random entry of small vehicles into fast and heavy movement of vehicles on major roads.

CRASH PRONE ZONES DURING NIGHT HOURS

Proper illumination through provision of adequate street lighting needs to be undertaken at such locations. Dark spots should be identified and taken up with concerned agencies for undertaking necessary development of infrastructure in order to make them safe.

Delhi Traffic Police will continue to work on improving the traffic situation by better enforcement and by adoption of advanced technology with cooperation of other stakeholders.

SAFE CITY PROJECT- SAFER WOMEN'S MOBILITY

With the aim to create a safe, secure and empowering environment for women in public places, to enable them to pursue all opportunities without the threat of gender-based violence and/or harassment, the Ministry of Home Affairs in collaboration with Ministry of Women & Child Development, GOI has approved "Safe City Project" for implementation by Delhi Police within the jurisdiction of NCT of Delhi.

Objectives –

a) Ensure, thorough use of technology, prompt availability of professionally equipped police personnel to reach women in distress
b) Increased and demonstrative presence/visibility in public places through installation of CCTV cameras and deployment of dedicated women-safety Mobile Police Vans (PRAKHAR VANS)
c) Quick and effective emergency response system to address the needs of women in distress.
d) 24x7 CCTV monitoring of public areas frequently visited by women and susceptible to crime
e) Integration of location-based services and crime and criminal databases with CCTV feeds for prompt and effective resolution of women safety issues at public places.
f) Analysis of video and creation of actionable warnings/alerts for preventive and curative actions.

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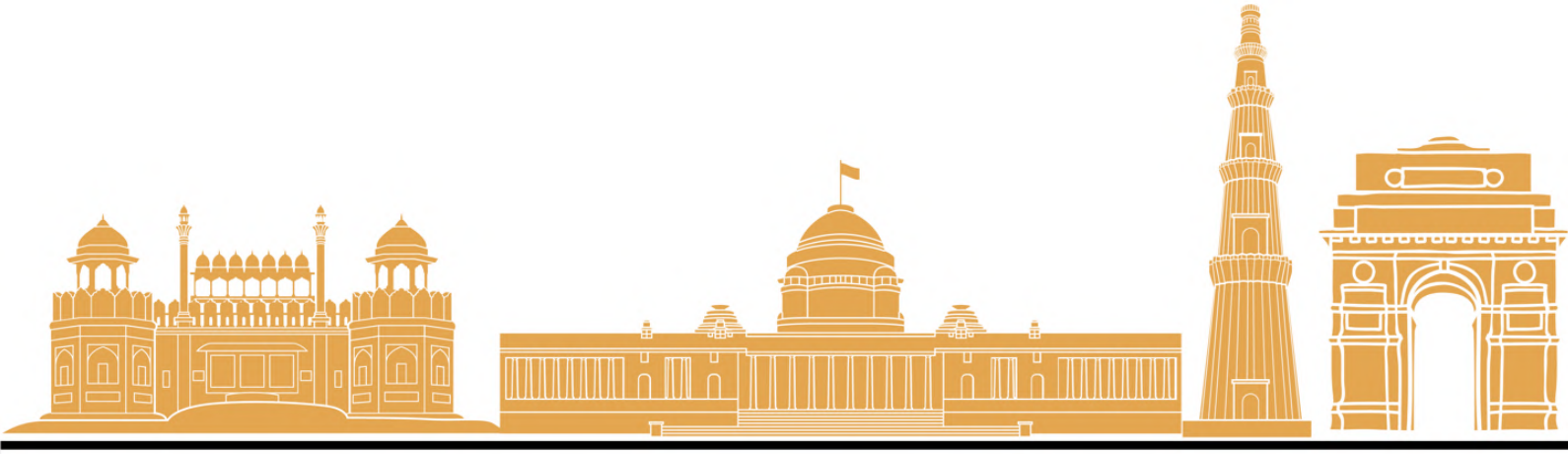
- **Road Safety Cell/DTC:** Data of DTC buses.

- **GNCTD and MCD**: Vehicular data –''Statistical hand book of Delhi".

ACCIDENT RESEARCH CELL



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