

#### Hit and run Accident prone zones:

- **49** accident prone zones are identified as **Hit and run accident prone zones** based on the criteria of 3 or more fatal or 4 or more total Hit and run accident cases within the range of 500-meter diameter. (Table 10.12)
- Fixing **CCTV cameras** and placing **CATs ambulance** at these places can be effective and preventive.

Map 10.7 (a)  
HIT AND RUN ACCIDENT PRONE ZONES – 2017 (Fatal accidents >3)

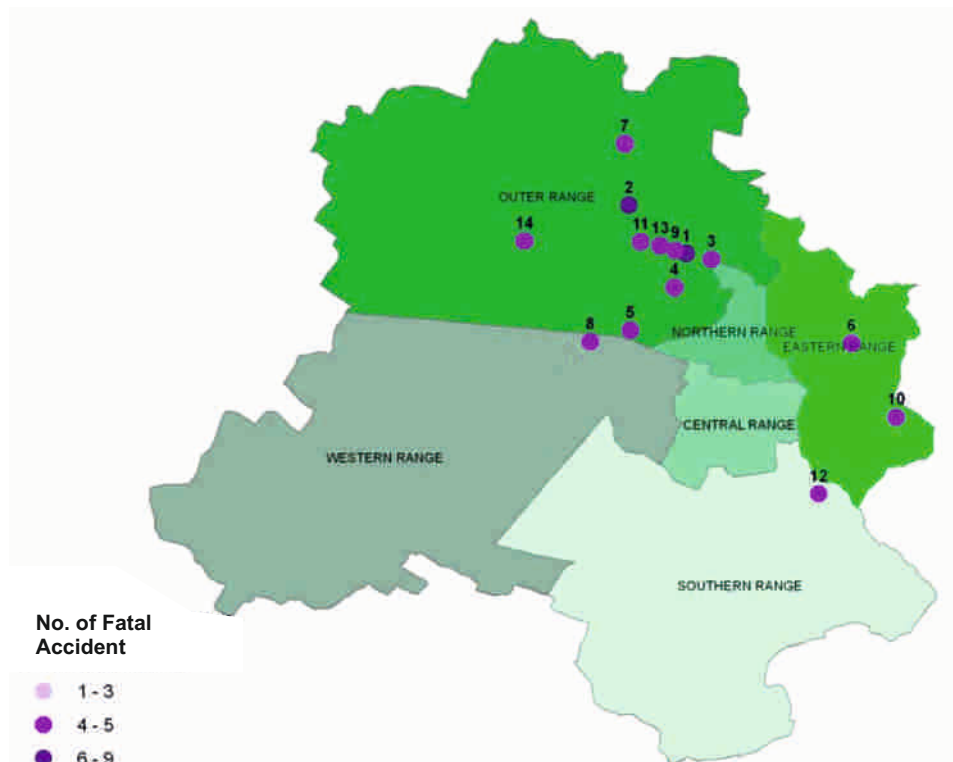


Table 10.12 (a)  
HIT AND RUN ACCIDENT PRONE ZONES – 2017 (Fatal accidents >3)

(FATAL ACCIDENT SENIORITY)				
S.NO.	ACCIDENT PRONE ZONES	SIMPLE ACCIDENTS	FATAL ACCIDENTS	TOTAL ACCIDENTS
1.	MUKUNDPUR CHOWK	5	9	14
2.	SIRASPUR	2	8	10
3.	BURARI CHOWK	6	5	11
4.	AZAD PUR CHOWK	3	5	8
5.	BRITANNIA CHOWK	3	5	8
6.	SHAHDARA FLYOVER	1	5	6
7.	SHANI MANDIR	0	5	5
8.	METRO STATION MADIPUR	7	4	11
9.	JAHANGIRPURI BUS STAND	5	4	9
10.	UNDER PASS GAJIPUR	3	4	7
11.	SGT NAGAR	1	4	5
12.	DND FLYOVER	1	4	5
13.	BHALSWA CHOWK	1	4	5
14.	PRAHLAD PUR VILLAGE	0	4	4

Map 10.7 (b)  
HIT AND RUN ACCIDENT PRONE ZONES – 2017 (Fatal accidents <4)

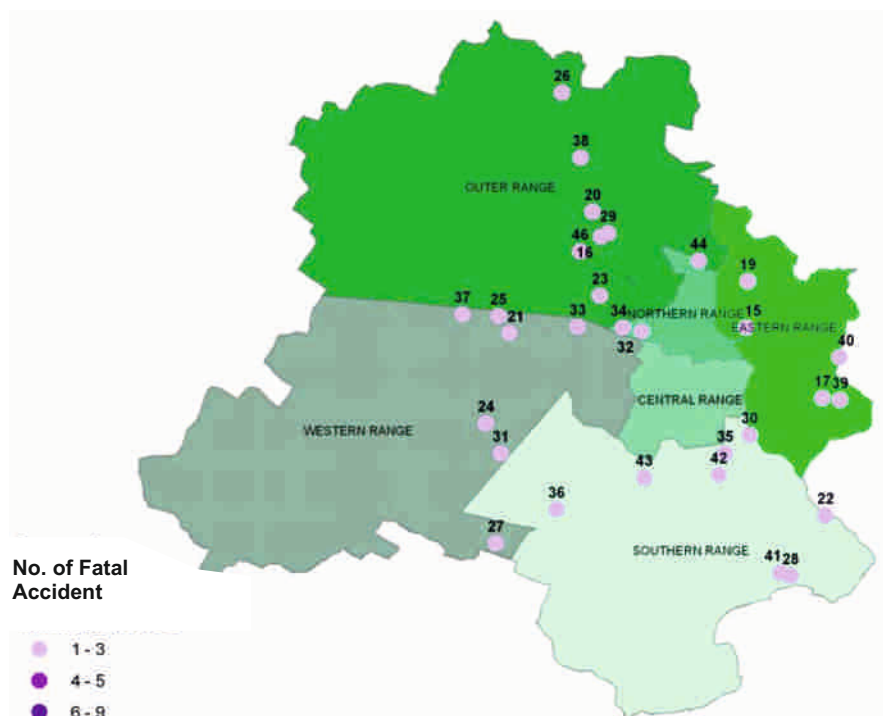


Table 10.12 (b)  
HIT AND RUN ACCIDENT PRONE ZONES – 2017 (Fatal accidents <4)

S.NO.	ACCIDENT PRONE ZONES	SIMPLE ACCIDENTS	FATAL ACCIDENTS	TOTAL ACCIDENTS
15.	SHASTRI PARK/IT PARK	8	3	11
16.	MUKHARBA CHOWK	5	3	8
17.	KHICHADI PUR	3	3	6
18.	JANAK CINEMA	3	3	6
19.	KHAJOORI CHOWK	3	3	6
20.	LIBAS PUR BUS STAND	3	3	6
21.	ROUND ABOUT BHAIKON ENCLAVE	2	3	5
22.	KALINDI KUNJ	1	3	4
23.	WAZIR PUR DEPOT	1	3	4
24.	VIJAY ENCLAVE PALAM	1	3	4
25.	UDHOG NAGAR	1	3	4
26.	TIKRI KHURD BUS STAND	1	3	4
27.	FUN N FOOD VILLAGE OLD GURGAON ROAD	1	3	4
28.	ICD TUGLAKABAD	1	3	4
29.	PREPAID BOOTH MUKHARBA CHOWK	1	3	4
30.	NIZAMUDIN YAMUNA BRIDGE	1	3	4
31.	PALAM FLYOVER	0	3	3
32.	SHASTRI NAGAR METRO STATION	6	2	8
33.	PUNJABI BAGH CHOWK	4	2	6
34.	METRO STATION INDERLOK	4	2	6
35.	SHAMSHAN GHAT BARAPULLA	4	2	6
36.	MAHIPALPUR FLYOVER	3	2	5
37.	KIRARI MORE	3	2	5
38.	SAI BABA MANDIR	3	2	5
39.	GAJIPUR DAIRY FARM	3	2	5
40.	ANAND VIHAR RAILWAY FLYOVER	3	2	5
41.	OKHLA MORE	5	1	6
42.	LAJPAT NAGAR	5	1	6
43.	HYAAT HOTEL	4	1	5
44.	NIRANKARI COLONY	4	1	5
45.	WAZIRABAD	4	1	5
46.	HAIDER PUR	4	1	5
47.	MUNIRKA	5	0	5
48.	SHAKAR PUR CHUNGI	5	0	5
49.	HARNAM PALACE ASHOK NAGAR	5	0	5

These are the places with high speed corridors and the places where there is a movement of heavy vehicles during the night.

#### Day time Accident prone zones:

- 26 accident prone zones were found to be more vulnerable zones during day time based on the criteria of 3 or more

fatal or 10 or more total accidents within the range of 500 meter diameter. (Table 10.13)

Map 10.8  
DAY TIME ACCIDENT PRONE ZONES – 2017

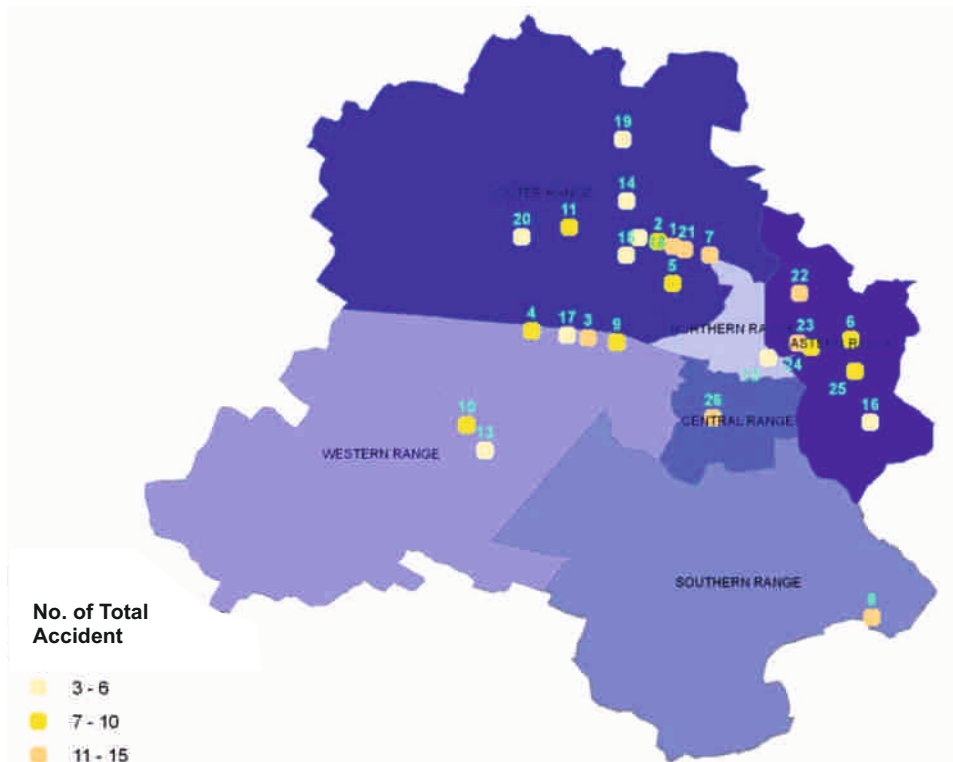




Table 10.13  
DAY TIME ACCIDENT PRONE ZONES – 2017

		(FATAL ACCIDENT SENIORITY)		
S.NO.	ACCIDENT PRONE ZONES	SIMPLE ACCIDENTS	FATAL ACCIDENTS	TOTAL ACCIDENTS
1.	AZAD PUR CHOWK	4	4	8
2.	BHALSWA CHOWK	4	5	9
3.	BHARTI VIDHYAPEETH ROHTAK RD	2	3	5
4.	BURARI CHOWK	12	3	15
5.	DHARAMPURA RED LIGHT	8	2	10
6.	EAST VINOD NAGAR/MV II RED LIGHT	3	3	6
7.	JAGAT PURI	9	1	10
8.	JAHANGIRPURI BUS STAND	5	8	13
9.	JAIPUR MORE	10	3	13
10.	KHAJOORI CHOWK	11	2	13
11.	METRO STATION HAIDER PUR	3	3	6
12.	METRO STATION MADIPUR	7	4	11
13.	MUKUNDPUR CHOWK	11	2	13
14.	NAWADA VILLAGE	4	3	7
15.	NIGAM BODH GHAT	3	3	6
16.	PRAHLAD PUR VILLAGE		3	3
17.	PRAKASH VIHAR SHAHBAD DAIRY	4	3	7
18.	PUNJABI BAGH CHOWK	5	3	8
19.	RAJAPURI RED LIGHT	3	3	6
20.	RML HOSPITAL	11		11
21.	SGT NAGAR	1	3	4
22.	SHAHDARA FLYOVER	3	4	7
23.	SHANI MANDIR	1	3	4
24.	SHASTRI PARK/IT PARK	10	2	12
25.	SIRASPUR	3	3	6
26.	UDHOG NAGAR	5	4	9

#### Night time Accident prone zones:

- **44 accident prone zones were found to be vulnerable zones during night time** based on the criteria of 3 or more fatal or 10 or more total accidents within the range of 500 meter diameter. (Table 10.14)
- **Proper illumination and reflective markings and signages alongwith cats eye** can reduce accidents at these places.

Map 10.9  
NIGHT TIME ACCIDENT PRONE ZONES – 2017

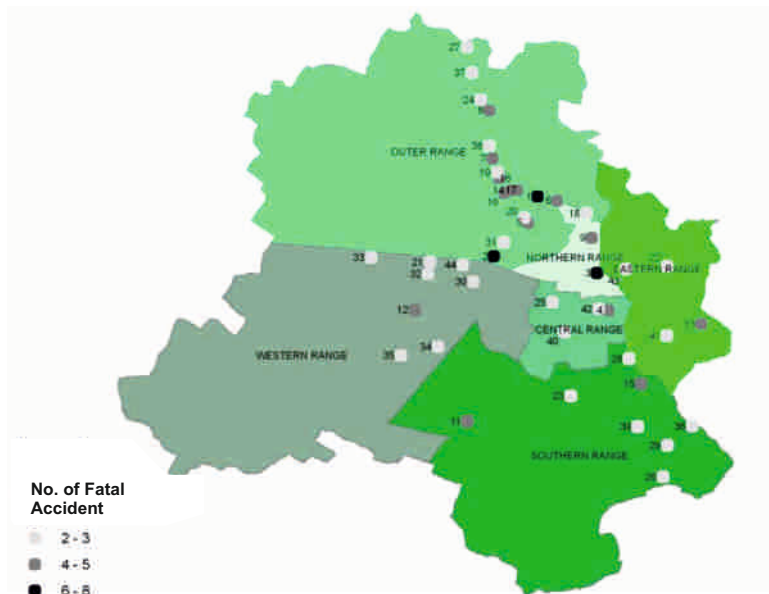


Table 10.14  
NIGHT TIME ACCIDENT PRONE ZONES – 2017

S.NO.	ACCIDENT PRONE ZONES	(FATAL ACCIDENT SENIORITY)		
		SIMPLE ACCIDENTS	FATAL ACCIDENTS	TOTAL ACCIDENTS
1.	MUKUNDPUR CHOWK	5	8	13
2.	BRITANNIA CHOWK	1	7	8
3.	ISBT K GATE	5	6	11
4.	DELHI GATE	7	5	12
5.	AZAD PUR CHOWK	5	5	10
6.	BURARI CHOWK	3	5	8
7.	SIRASPUR	2	5	7
8.	SHANI MANDIR		5	5
9.	MAJNU KA TILA	8	4	12
10.	MUKHARBA CHOWK	6	4	10
11.	MAHIPALPUR FLYOVER	5	4	9
12.	VIKASPURI FLYOVER	5	4	9
13.	UNDER PASS GAJIPUR	5	4	9
14.	PREPAID BOOTH MUKHARBA CHOWK	3	4	7
15.	DND FLYOVER	2	4	6
16.	BHALSWA CHOWK	2	4	6
17.	CNG PUMP/JAIN MANDIR		4	4
18.	NIRANKARI COLONY	6	3	9
19.	LIBAS PUR BUS STAND	4	3	7

S.NO.	ACCIDENT PRONE ZONES	SIMPLE ACCIDENTS	FATAL ACCIDENTS	TOTAL ACCIDENTS
20.	ADARSH NAGAR	4	3	7
21.	PEERA GARHI CHOWK	4	3	7
22.	SHAHDARA FLYOVER	3	3	6
23.	AIIMS	3	3	6
24.	BAKOLI BUS STAND	2	3	5
25.	HANUMAN MANDIR PUSA ROAD	2	3	5
26.	ICD TUGLAKABAD	2	3	5
27.	SINGHU BORDER	2	3	5
28.	NIZAMUDIN YAMUNA BRIDGE	2	3	5
29.	SARITA VIHAR METRO STATION	2	3	5
30.	SHAMSHAN GHAT RING ROAD	2	3	5
31.	WAZIR PUR DEPOT	2	3	5
32.	ROUND ABOUT BHAIKOT ENCLAVE	2	3	5
33.	RAJDHANI PARK	2	3	5
34.	SAGARPUR BUS STAND	1	3	4
35.	POWER HOUSE MAHAVIR ENCLAVE	1	3	4
36.	KALINDI KUNJ	1	3	4
37.	TIKRI KHURD BUS STAND	1	3	4
38.	NANGLI POONA	1	3	4
39.	GOVINDPURI METRO STATION	1	3	4
40.	BUS STAND TALKatora STADIUM	1	3	4
41.	UNDER PASS PATPARGANJ	0	3	3
42.	GB PANT HOSPITAL	0	3	3
43.	SHASTRI PARK/IT PARK	9	2	11
44.	METRO STATION MADIPUR	8	2	10

Illumination of the roads is being the major influencing factor for night accident prone zones.

The accident prone zone can broadly be classified into the following zone types:

Table 10.15

**TYPES OF ACCIDENT PRONE ZONE – 2017**

S.NO.	ZONE TYPE	NUMBER OF ACCIDENT PRONE ZONES
1.	ROAD STREACH	25
2.	MULTI-LEVEL INTERSECTION	25
3.	T-INTERSECTION	21
4.	INTERSECTION	20
5.	MULTI-INTERSECTION/STAGGERED JUNCTIONS	11
6.	BUS-STAND	11
7.	METRO STATION	8
8.	HIGHWAY VILLAGE	7
9.	FLYOVER	5
10.	EXCHANGE HUB	5
11.	HOSPITAL	4
12.	ROUND ABOUT	3
	<b>TOTAL</b>	<b>145</b>

#### Note:-

1. **Multilevel intersections** are the intersections which are modified by making flyovers, underpasses, flyover loops at normal intersections eg. Punjabi Bagh chowk, Dhaura Kuan, Mukarba chowk etc.
2. **Multi intersection** are the junction points of more than 2 roads or a stretch of single major road having more the 2 minor roads joining within 500 meter stretch.
3. Exchange hubs **are the places where there is 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.**
  - The above classification does not completely segregate one category from others; there is some overlapping for e.g. Some metro stations are also exchange hubs e.g. Peera garhi chowk. Some Exchange hubs are also multilevel intersections e.g. Mukarba chowk.
  - The classification clearly shows that intersections of different types are more prone to accidents. Multilevel intersections being the most dangerous as it includes the flyovers/underpasses accidents and the ground level conflict accidents.
  - Other accident-prone places are places of high foot fall eg. 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 safe, systematic transport exchange facility (metro buses, buses, TSR, E-rickshaw, etc.), for passengers.
    - (ii) The points don't have safe boarding facilities for passengers to board buses/RTVs, etc., (People stand, wait and board from 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.

#### Correction of accident prone zones:

- Field officers study and analyze these spots for the causative factors of accidents 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 FOB's/Subways.

The preventive measures are suggested to road maintaining and other civic agencies.

- The field officers send proposals through Traffic Engineering Branch for improvement in road structure and road design. The proposals can be of 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 (cats eyes, road blinkers, thermoplast road markings, reflective bollards etc.)
  - (v) Nose protection
  - (vi) Modification or some change of traffic movement
  - (vii) Fixing of railing on road side or on divider
- And the long-term measures for removing of traffic related problem (regulation and accidents) 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 oval round-about, etc.
- Accordingly, corrective measures among listed above were taken. This was accompanied by Enforcement and Road Safety Education.

**The comparison of the list of accident prone zones of the year 2016 and 2017 reveals that:**

- (i) Out of 108 Accident Prone Zones of 2016, 40 spots mentioned did not come under the above criteria and thus did not find place in the list of Accident Prone Zone of the year 2017. Hence they were removed.
- (ii) **97 Accident Prone Zones show decrease in fatal accidents** in the year 2017 as compared to 2016. **Shastri Nagar Metro station (-7), Libaspur bus stand (-7), Rajouri garden (-6), Rajokari flyover (-6) and District center janakpuri (-6)** have maximum decrease in fatal accidents in the year 2017.
- (iii) **123 Accident Prone Zones show decrease in total accidents** in the year 2017 as compared to 2016. **Kalindi Kunj (-15), Shastri Nagar metro station (-11) and Radisson hotel (-11)** have maximum decrease in fatal accidents in the year 2017.
- **Around 32.14% of total fatal accidents (503 out of 1565) occurred in the road-stretch at accident prone zone (APZ) which is around 80 km. in length.**
- **235 (47%) out of these are hit and run cases. CCTV cameras can be installed and CATS Ambulances can be positioned at these points to reduce the fatality and ensure quicker response to accidents.**

**SUGGESTIONS:**

The accidents occurring in a zone depend on its structural design and the type of vehicles moving through it and the time-period of the day when more accidents took place. Accordingly, corrective and accident preventive measures have to be taken. There is no clear

segregation of type of traffic moving through an accident-prone zone, still, the Accident Prone Zones can be classified based on the type of majority victim/offending vehicle involved in the accidents occurring there. Accordingly, steps can be taken to prevent the accidents occurring there. Following are some of the general steps that can be taken to prevent the accidents at the accident-prone zones:

**I. PEDESTRIAN ACCIDENT PRONE ZONES:**

1. These are the places which lack safe pedestrian facility for movement (foot-paths), road crossing (FOBs, skyways) and boarding places (safe platform for waiting and boarding a bus/TSR, Graminsewa etc.).
2. Speed is the main contributing cause in an accident resulting in fatality, particularly on the National Highways and other major arterial roads which are wide. Traffic should be slowed down safely well before any such point with speed calming measures.



3. Table top with speed calming surface can be constructed in the common area of the intersection to reduce the speed of all the vehicles.



4. Speed calmers on major roads should be preceded and followed by the installation of thermoplast strips and cats eye (pseudo speed breakers). It acts as better warning agents than display boards.

5. The place including the place of speed calming measures and its sign boards, and reflectors should be properly illuminated.
6. The road markings and signages should be visible round the clock.
7. Repairing/re-fixing of worn out speed calming measures like rumble strips, pseudo breakers and fixing of cats eye should be done.
8. The movement of thousands of people as pedestrians at the intersections like Peera Ghari for changing direction of travel of public transport, create conflict with the vehicles. This makes them unsafe and also obstructs the vehicular movement which adds to the congestion and pollution.

If elevated guided paths/FOB can be designed for their safe movement, right from the alighting point from the first vehicle to the boarding point of the second vehicle, people will have not to move on road, making them safe and also reducing traffic congestion.

9. At the Accident Prone Zone where pedestrians are the main victims, efforts should be made for complete removal of pedestrian movement on the carpeted area of the road.
10. The arrangement of making FOB with guided paths should be preferred over pelican crossing or red light crossing for pedestrians on NHs and high-speed corridors because:
  - a. The risk factor is still higher in signal crossing due to the possibility of human error and high speed of the vehicle corridors, especially during lean hours/night hours.
  - b. Halting of traffic even for few seconds or minutes adds to the congestion and pollution, especially during peak hours.
  - c. This halting and slow movement of traffic on mass level adds to the burden on GDP due to extra fuel burning.
  - d. This also increases the frustration in

the minds of driver and the pedestrian which sometimes leads to road rage.

11. Location of the foot over bridge and its entry/exit point should be such that it is easily accessible to the pedestrians, so that it can be used maximum.
12. It has been found that if the foot over bridge is provided at the intersections and not at the actual place where the people need to cross the road, people prefers to cross intersection by road and not by FOB which makes it ineffective and useless. It should be ensured that FOB is provided at the right place of need.
13. Foot over bridges should be extended over the side road or service road so that it takes the pedestrians directly to the place of use and pedestrians directly land into nearby mall platform area/ boarding area of ISBT.
14. **Places where FOBs are needed should be identified and recommended.**
15. **Those FOBs/subways which are not being used to be modified / improved/ relocated, so that it is optimally used. Escalators can be added to make it more effective.**
16. **Those FOBs/Subways which cannot be improved to attract people should be discarded and got removed, as it become reason of congestion, pollution and accidents.**



17. **Multinodal Exchange hubs:** There should be proper and systematic placement of public transport exchange facilities like auto rickshaws, city buses and interstate buses at the multi nodal hubs like ISBT or



Mukarba chowk, Peeragarhi chowk so that passengers interchange them easily (even with luggage or children) and safely from proper safe platform, without roaming on road or risking their life for crossing the road or boarding the buses from the road.

18. Information regarding the modes of transport available for the users at the exchange hubs like ISBT, Mukarba Chowk, etc., should be more expressive and more user friendly so that people, particularly new comers easily get information of their next mode of transport at the exchange hub, without roaming unnecessarily on the roads. This information can be in the form of:
  - a. 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.
  - b. Direction boards for the passengers to get next connecting mode of transport or to reach nearby important places safely through footpaths and foot over bridges.
19. Fixing of high grills at the central verges at place where accident of pedestrian occurs while crossing the road. This should be done after providing facilities for safe passage for pedestrians to cross the roads.
20. Boarding/de-boarding in interstate buses from road outside the ISBT bus stand should be strictly stopped with the help of the ISBT administrators, as the waiting place of such passengers on road is found to be cluster point of accidents.



21. Planning of auto rickshaw stands and bus stands so as to avoid halting and boarding/de-boarding at the end/start of flyover. Such places become prone to accidents and add the traffic congestion and hence pollution (ex. ISBT Kashmiri gate).

## II. TWO-WHEELER ACCIDENT PRONE ZONES:

1. More prosecution/education is required at such point.
2. 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.
3. Speed calmer/mastic strips to be placed on minor road just before it meets the major road, it stops the random entry of small vehicles into fast and heavy movement of vehicle on major road
4. Slow moving vehicles and two wheelers prefer to move in a shorter wrong direction to cross the road, if 'U' turn or the proper road crossing passage is a far away (more than a km.). For example, as on NH-1 for vehicles coming on Sanjay Gandhi Transport Nagar, on Rangpuri on NH-8, and many cuts near Nangloi on NH-10. Such wrong side movement on the main road can be prevented by making underpass or providing service roads.



5. Conflict points in traffic movement should be detected and should be made safe. Eg.
  - a. Merging points of traffic at end of a flyover.
  - b. Small road stretches between two

- flyovers that have common entry – exit into and out of the fly over.
- c. Perpendicular movement of traffic/ pedestrian at the end of a flyover or a flyover loop.
  6. Separate Underpasses/FOBs (and if possible skyways) wherever possible to be made for slow moving vehicles/two wheelers.
  7. Pseudo two-wheeler tracks can be tested for safe and disciplined movement of two wheelers on major roads at two-wheeler Accident Prone Zones.
  8. 2664 people were injured and 551 lost their lives in two wheeler accidents in the year 2017. Most of these deaths are caused due to head injury.

**A (head immunization) 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 in two-wheeler riding.**

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

**If this become successful its cost would be less than the loss suffered due to two-wheeler accident injuries/deaths.**

### **III. CYCLIST ACCIDENT PRONE ZONES:**

1. Cyclists become victims in road accidents:
  - a. Due to lack of NMV on straight stretch of road.
  - b. Lack of safe road crossing facility on wide road near/at the intersection.
  - c. Due to darkness during night (where there is poor illumination) as cycles do not have light source of their own.
2. To prevent these accidents Illumination of roads should be given importance,

particularly in 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 accident. Illumination is important in preventing pedestrian and cyclist accidents.

3. Distribution of reflective stickers/jackets can be done in cyclists Accident Prone Zones. It can be distributed during evening peak hours in corridors having heavy cyclist's movement, so that it goes to actual users.
4. Planning of intersections should be done as per the composition of the vehicular movement for example, at Shastri park red light, importance to be given to the movement of the cycles, cycle rickshaws and slow-moving vehicles. Experts can be involved for the segregated safe movement of these vehicles.
5. More number of FOBs/subways/small under passes should be provided on 6 and 8 lane roads, NHs for safer crossing on these roads for pedestrians, two-wheelers and slow-moving vehicles of local residents.
6. Conflict points in traffic movement should be detected and should be made safe.

### **IV. ACCIDENT PRONE ZONES OF HIT AND RUN CASES:**

1. CCTV camera can be installed at these points.
2. Cats ambulances and PCR Vans halting points can be made near such points.

### **V. HTV/CAR/TSR ACCIDENT PRONE ZONES:**

1. More prosecution/education of the respective types of vehicle is required at and near such point.
2. Conflict points in traffic movement should be detected and should be made safe.

### **VI. ACCIDENT PRONE ZONES OF NIGHT:**

1. Proper illumination is required at these points.
2. Dark spots to be identified and removed.

\*\*\*\*\*