



## Road safety for Children and Adolescents

Shamrao Shripati Bharate P.M.C. School, Warje

April 24



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## **Executive Summary:**

The Road Safety Audit of School Zone conducted for Shamrao Shripati Bharate P.M.C. School in Warje aims to comprehensively assess the safety measures and potential hazards along the designated route. This audit, undertaken by a team of experienced professionals, addresses critical factors affecting road safety, including infrastructure design, speed and traffic flow, signage, and environmental conditions.

### **Key Findings:**

#### 1. Infrastructure Evaluation:

- Detailed analysis of road geometry, alignment, and intersections reveal areas prone to accidents or congestion.
- Identification of potential safety enhancements such as lane widening, shoulder improvements, and intersection redesign to mitigate risks.

#### 2. Traffic Flow and Control:

- Examination of traffic volume, speed limits, and congestion patterns highlights areas requiring better traffic management strategies.
- Recommendations for optimizing traffic flow, including signal timing adjustments, lane reconfiguration, and implementation of traffic calming measures.

#### 3. Signage and Markings:

- Assessment of signage visibility, placement, and adequacy to provide clear guidance to drivers.
- Proposals for upgrading signage and pavement markings to enhance visibility and reduce driver confusion.

#### 4. Vulnerable Road Users:

- Consideration of pedestrian and cyclist safety through the evaluation of crosswalks, bike lanes, and pedestrian refuge islands.
- Suggestions for improvements such as enhanced lighting, pedestrian-friendly infrastructure, and dedicated cycling paths.

#### 5. Environmental Factors:

- Examination of environmental conditions such as lighting, weather, and road surface quality impacting road safety.
- Recommendations for mitigating environmental hazards, including improved drainage systems, vegetation management, and surface treatments.

**Recommendations:**

Based on the findings of the road safety audit, the following recommendations are proposed to enhance safety along the designated route:

- Implementation of targeted infrastructure improvements to address identified hazards and enhance overall road safety.
- Adoption of traffic management measures to optimize traffic flow and reduce the risk of accidents.
- Upgrading signage, markings, and lighting to improve visibility and guidance for road users.
- Incorporation of pedestrian and cyclist-friendly features to prioritize vulnerable road users.
- Continued monitoring and evaluation of safety measures to ensure ongoing effectiveness.

**Conclusion:**

The road safety audit provides valuable insights into the current state of road safety along the designated route and offers practical recommendations for improving safety conditions. By implementing the proposed measures, stakeholders can significantly reduce the risk of accidents, injuries, and fatalities, creating safer and more sustainable transportation infrastructure for all road users.

# 1 Introduction

## 1.1 Safety Audit

**Road Safety Audit (RSA)** is a formal procedure for assessing accident potential and safety performance in the provision of new road schemes and schemes for the improvement and maintenance of existing roads. Road safety audits assess the operation of a road, focusing on road safety as it affects the users of the road. These users include pedestrians, cyclists, motorcyclists, truck/bus drivers, on-road public transport users, etc. The outcome of a road safety audit is the identification of any road safety deficiencies and formulation of recommendations aimed at removing or reducing those deficiencies.

What is **School Child Road Safety**? In this context, it becomes particularly crucial to extend the focus to the safety of school children who are among the most vulnerable road users. Incorporating a specific consideration for the unique needs and behaviors of school children in road safety audits is essential to ensure safe access to school. These audits should consider factors such as the presence of school zones, proximity to educational institutions, and patterns of student commuting. Assessments include the examination of designated school crossings, sidewalks, and nearby intersections to identify potential hazards that may pose risks to children walking, cycling, or being dropped off at school. Recommendations stemming from road safety audits should, therefore, encompass measures tailored to enhance the safety of school children, such as implementing additional crosswalks, improving signage, establishing school-specific speed limits, and ensuring the presence of safe and well-marked pedestrian pathways. By integrating a child-centric approach into road safety audits, we can contribute to creating safer environments for young pedestrians and cyclists as they navigate the roads to and from school.



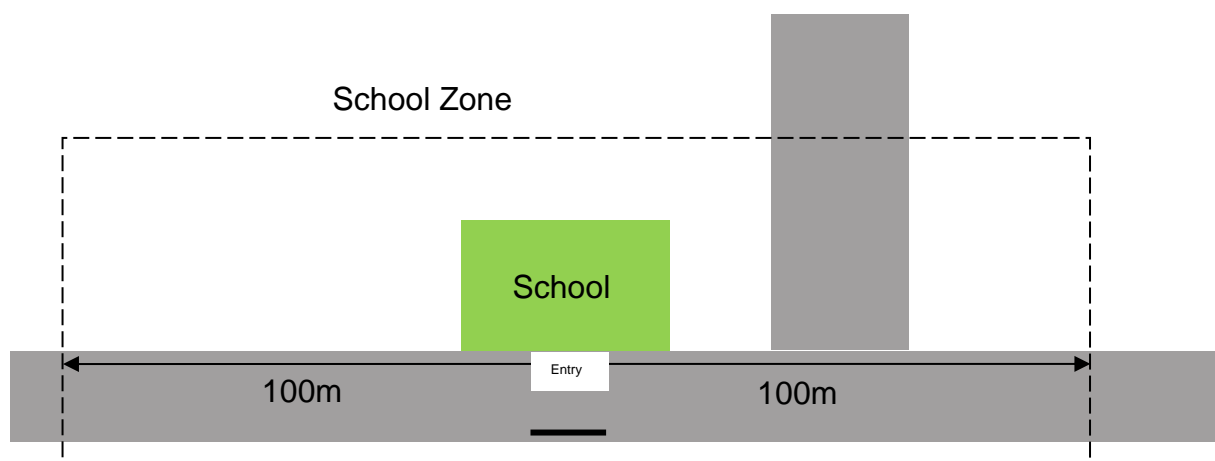
‘Children seen holding hands to cross due to fear of safety’

The primary purpose of this report is to comprehensively assess the current state of school zone safety and provide informed recommendations for improvement. By examining various facets, including infrastructure, traffic flow, enforcement measures,

and community involvement, the report aims to identify key areas of concern and suggest practical strategies to enhance safety.

## 1.2 About School Zone

The school zone is the immediate area around the school within which most students are present, as they commute between home and school either on foot, cycle, or public transport (*Source: Draft IRC SP32*). These zones see high footfall of children and their caregivers, especially during school hours in the morning, afternoon, and evening. This guideline considers a stretch of 100m on either side of the school entrance as a 'School zone'. This guideline defines 'school' as various types of educational centers serving all age groups of children i.e., kindergarten, Anganwadi's, primary, secondary, and higher secondary schools.



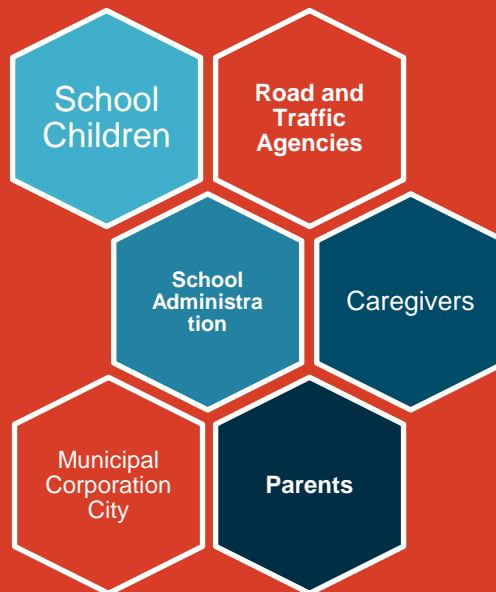
School zones can be defined by considering the following aspects:

- Location parameters include the type of roads within the school zone area which can be ranging from kaccha (unpaved) road to national highways. Type of intersecting area, i.e. signalized, un-signalized, roundabout, grade separators, etc.
- The layout of existing schools may have entry/exit gates opening on road/service lanes/at intersection. This also includes the activity on the street based on adjoining plots and land use.
- School bus parking and drop off/ pick up area should be provided within or outside the school premises. Commuting to school also involves provision of parking space for children commuting by cycle, teachers, and staff vehicles within the campus. Further, it should encompass designated drop off locations for school vans, bicycles, and para transit such as rickshaw, e-rickshaw, three wheeled auto rickshaw, three wheeled auto rickshaw parking.
- Considering the decreasing likelihood of presence of school children as one moves away from a school, a school zone shall be divided into the school access zone and the school proximal zone. This is further supplemented by a Transition Zone which will not be a part of the school zone, but it should be

considered as essential component aimed at providing smooth transition into the school zone.

### 1.3 Stakeholders for safer school zone

Ensuring the safety of school children involves the collective commitment of various stakeholders, each playing a pivotal role in creating secure and conducive environments. Some of the key contributors to this shared responsibility include:



- a. **Road and Traffic Agencies:** These agencies are instrumental in designing and maintaining road geometry tailored to the specific requirements of school zones. Beyond infrastructure, they manage traffic through effective measures such as traffic calming strategies, with local traffic police taking charge of enforcement to ensure compliance with safety regulations.
- b. **School Administration:** School administrators shoulder the responsibility of implementing temporary traffic management measures during school hours, collaborating with local traffic authorities or the School Management Committee. They also oversee the safe transportation of students, particularly when involving private contractors. In instances of overlapping school zone areas, strategic scheduling with staggered opening and closing times becomes essential.
- c. **Parents:** As essential stakeholders, parents contribute significantly to their children's safety. Adhering to a safety checklist is imperative, involving cooperation with transportation services, utilizing designated drop-off and pick-up points, and staying informed about road safety guidelines.
- d. **Children:** Empowering children with knowledge about road safety is crucial. A comprehensive list of dos and don'ts serves as an educational tool,



encompassing safe pedestrian practices, understanding traffic signals, and emphasizing the importance of vigilance during their commute.

Through a collaborative effort among these stakeholders and a clear delineation of their roles, a holistic approach to school zone safety can be realized, prioritizing the protection and well-being of every child.

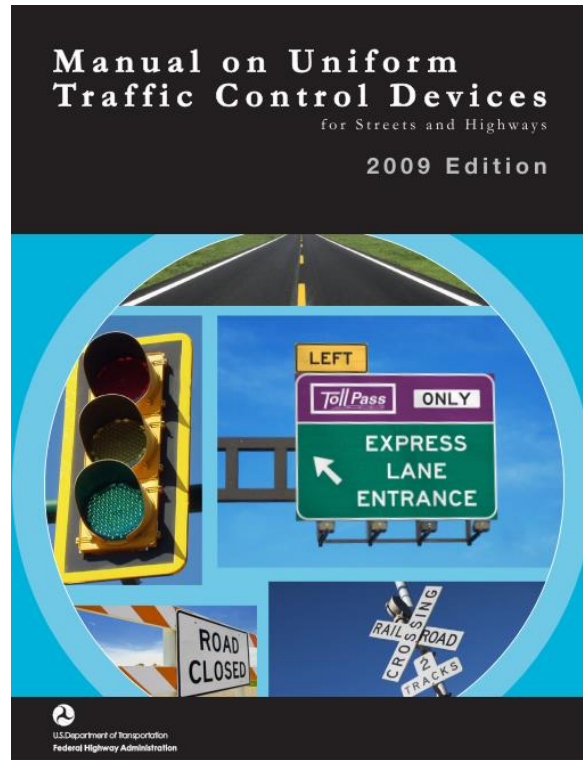
## 2 Design Guidelines

IRC:SP:32-2023

### GUIDELINES FOR SAFER COMMUTE TO SCHOOLS

*(First Revision)*

*Published by:*  
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New Delhi-110 022  
JULY, 2023



### School Priority Zone Guidelines

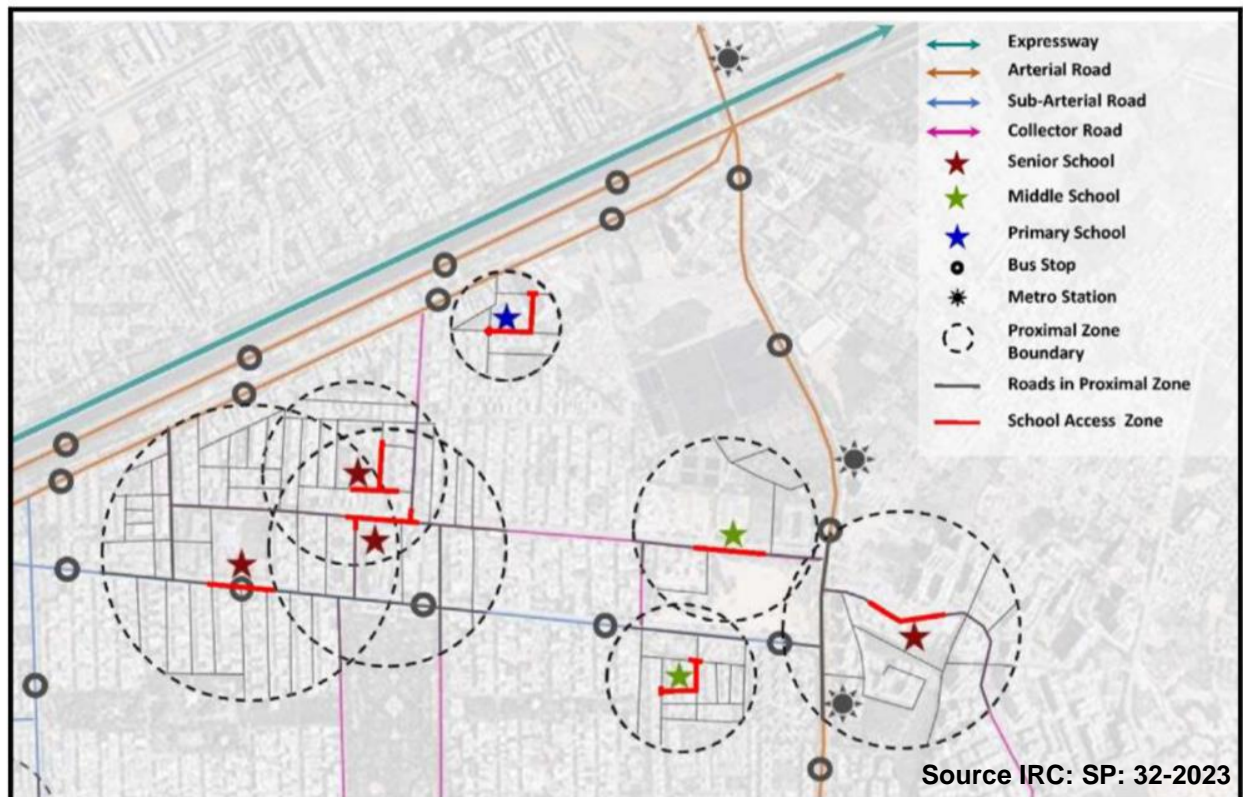
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## 2.1 School Access Zone (SAZ)

School Access Zone (SAZ) can be understood as the road leading to every entrance of the school, extending 100 m on either side. If a school has more than one entrance, it can have more than one access zone.



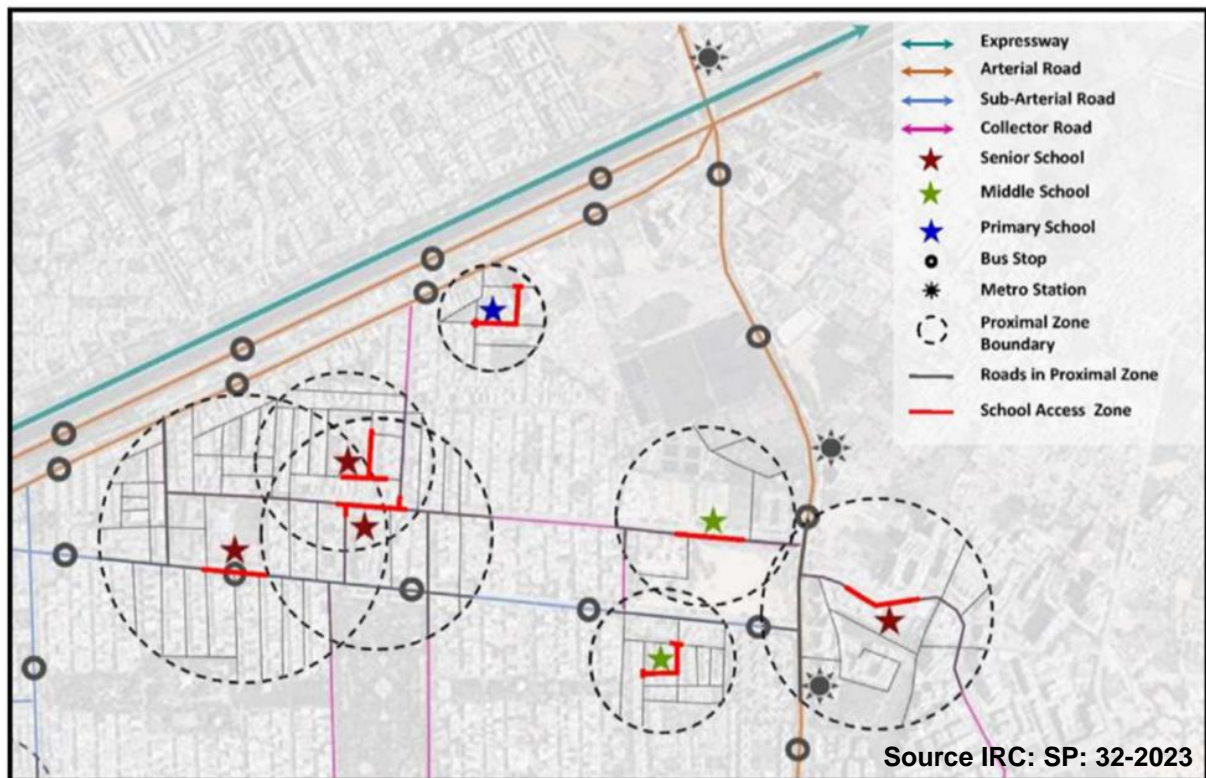
**Figure 1 Extent of School Proximal Zones and School Access Zones**

## 2.2 School Proximal Zone

School Proximal Zone (SPZ) can be considered as an area around a school. The table provides the radius of the school zone to be measured from school for defining school proximal zone.

**Table 1 Radius for School Proximal Zone (Source IRC: SP: 32-2023)**

Road Type	Primary (meters)	Secondary (meters)	Senior Secondary
Urban Roads/ Interurban roads	400	450	500
Arterial Roads/Highways	300	350	400
Collector street/ Other district roads	200	250	300
Local Streets/Other Roads (including PMGSY Roads)	150	200	250



**Figure 2 Extent of School Proximal Zones and School Access Zones**

### 2.3 School Transition Zone

Motorists entering a school zone need to be forewarned of the special nature of this zone, by means of a transition zone (or stretch). As a rule of thumb, the following values can be considered as transition stretches according to the design speeds and road categories are presented in the table.

**Table 2 Applicable zone radius extension covering the various functional classification of urban & interurban roads (Source IRC: SP: 32-2023)**

Road Type	Design Speed as per IRC:86 (kmph)	Secondary (meters)	Senior Secondary
Arterial Roads/Highways	60	30	70
Sub Arterial Road/Major District Roads	60	30	45
Collector street/ Other district roads	40	30	35
Local Streets/Other Roads (including PMGSY Roads)	30	20	20

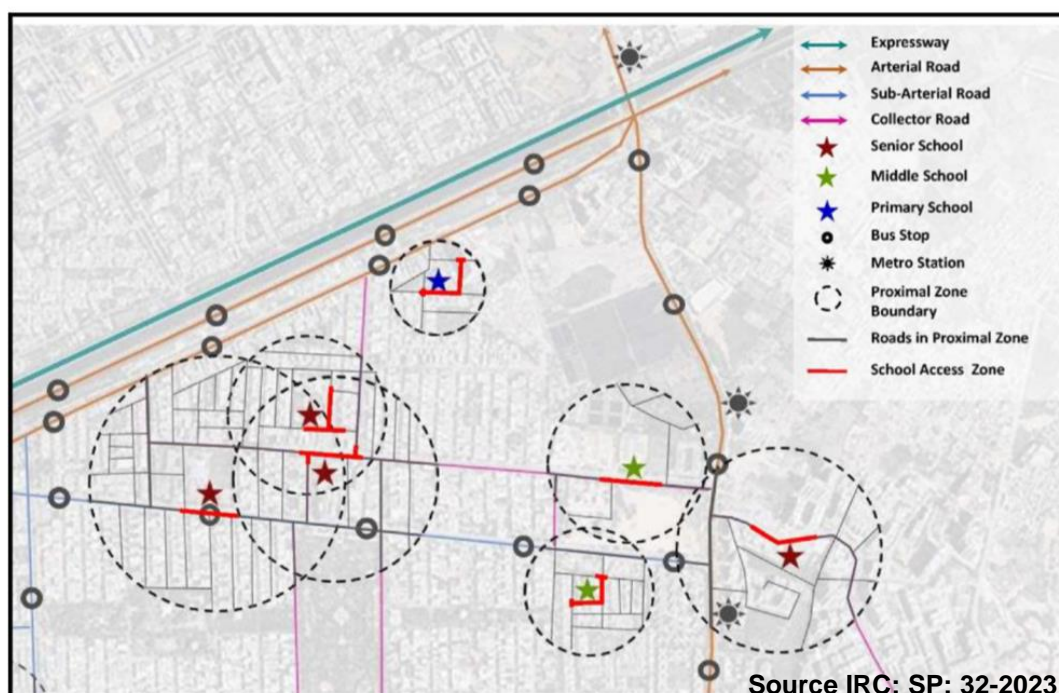


Figure 3 Extent of School Proximal Zones and School Access Zones

## 2.4 Speed Management in School Zones

Speed calming needs to enforce in school zones to ensure students safety, due to the following:

- 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.
- 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% at 65 km/h**.

Speed management in school zones:

- ▶ Enforcing fixed speed limits
- ▶ Enforcing time specific speed limit

Threshold values for prescribed vehicular speeds within school zones.

Table 3 Length of transition zone & applicable speed limit in SPZ (Source IRC: SP: 32-2023)

Road Type	Design Speed as per IRC:86 (kmph) Secondary (meters)	Preferred methods for enforcing speed limits	Road Type
Urban Roads/ Interurban roads	SAZ	SPZ	500

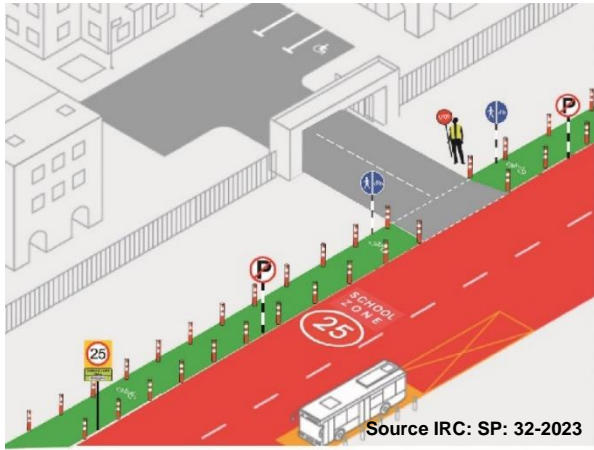
Arterial Roads/Highways	25	30	Arterial Roads/Highways
Sub Arterial Road/Major District Roads	25	30	Sub Arterial Road/Major District Roads
Collector street/ Other district roads	25	30	Collector street/ Other district roads



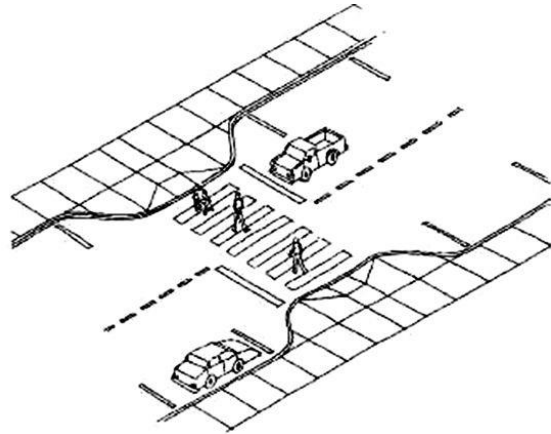
**Figure 4 Typical illustration of various measures required for the School Gate located on the Midblock Location of Two-Lane Bidirectional Road**

### 2.5 School entry/exit gate

Ensure speed reductions using through provision of traffic calming measures like speed breakers, raised crossings, narrowing of road width coupled with provision of relevant road signs and markings.



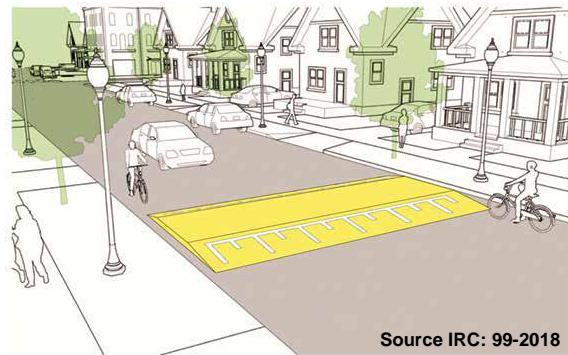
**Figure 5 School Entry and Exit Gates`**



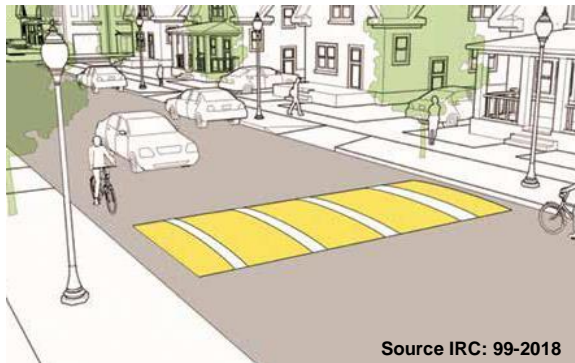
**Figure 6 Lane Narrowing**



**Figure 7 Speed Table**



**Figure 8 Trapezoidal Hump – Flat top with tapered sides**



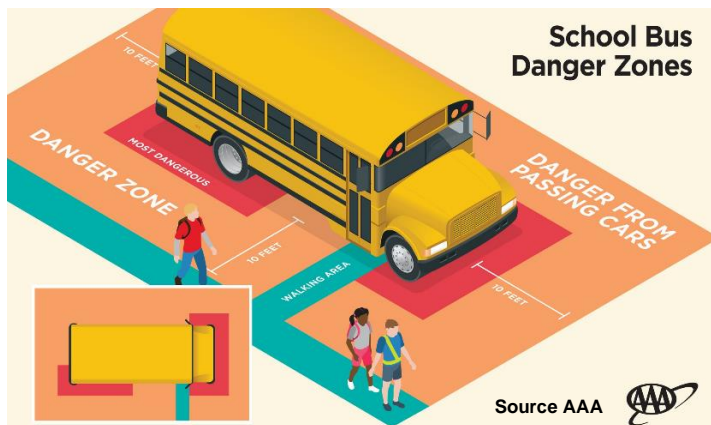
**Figure 9 Circular Hump - Shape of a circular Arc**



**Figure 10 Textured Paving over Raised Crossings**

## 2.6 Pick & Drop Areas

Pick and drop facilities include provisions for school bus and private modes (auto-rickshaws, vans, cycles, four and two-wheeler).



The “Danger Zone” is the area on all sides of the bus where children are in the most danger of not being seen by the driver (3m in front, 3m on either side of the bus, and 3m behind are all areas where a child may be in the driver’s blind spot).

Figure 11 School Bus Danger Zone

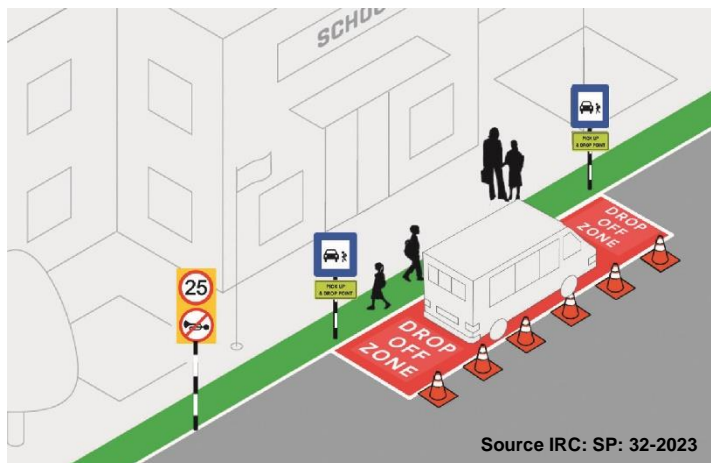


Figure 12 Pick-up and Drop Off Zone



Figure 13 Pick and drop facility for private vehicles.

## 2.7 Walking Infrastructure

### 2.7.1 Footpaths

For collector roads and above, raised footpath should be provided on both sides of the carriageway, as per dimensions and specifications mentioned in the IRC:103, with a minimum of 2m clear width on footpath and minimum 3m one way bicycle track.





**Figure 14 Pedestrian Facility**

### 2.7.2 Guard Rail

Guard rails are essential to prevent children from running on to the roads.



**Figure 15 Guard rails and organization of pedestrian space**

### 2.7.3 Pedestrian Crossing

All pedestrian crossings shall conform to IRC:103, i.e., within the range of 2-4m.



**Figure 16 Intersection falling within a school zone**



**Figure 17 Speed table crossing**

### 2.7.4 Pedestrian Refuge Islands

To provide a place of safety to pedestrians crossing wide streets



**Figure 18 Refuge Island with safe gap for pedestrians**

### 2.8 Cycling Infrastructure

Cycling infrastructure has no value when provided on a road has no value unless it is planned at a network level. Cycle parking should be installed either within the school premises or along the compound wall of the school.



**Figure 19 Cycle Track in Delhi**



**Figure 20 Racks for stacking and parking bicycles**

## 2.9 Public transit stops within School Zone

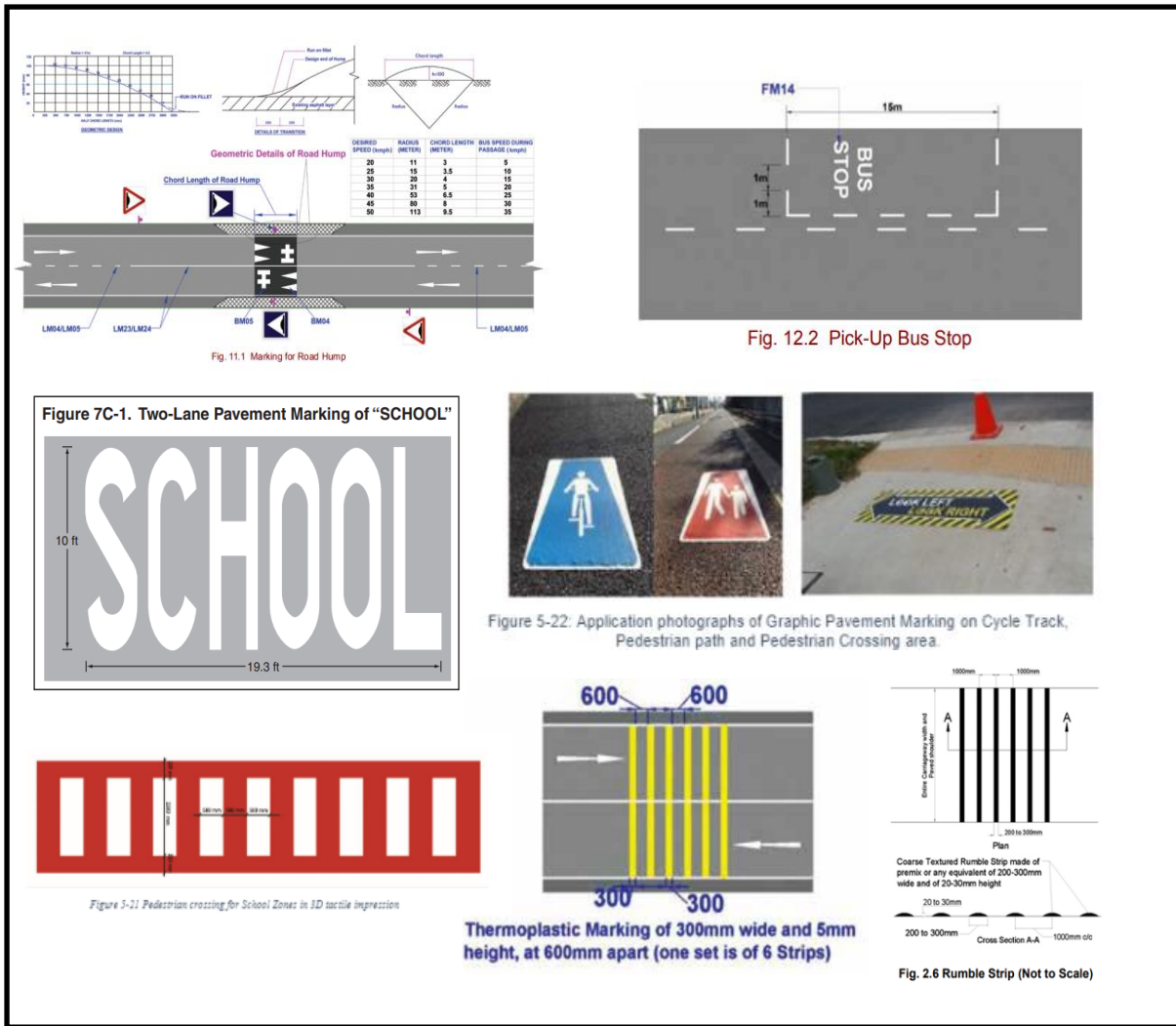
- Public transit stops falling within school zones must make sure the bus stops are accessible by children (i.e. height of bus stop flooring not more than 150mm)
- It should be robust with anti-skid, levelled floor space and preferably with a cantilever roof, sufficient shade, and light along with route information display maps, statutory signs etc.



**Figure 21 Public transit stops falling within a school zone**

## 2.10 Road Markings

Road Markings will conform to IRC: 35 2015.



**Figure 22 Sample Pavement marking as per IRC 35: 2015 and IRC SP 32: 2023**

### 2.11 Parking

- ▶ All on street Parking should be discouraged from SAZ, especially on the road adjacent to schools especially during school hours.
- ▶ It shall be the responsibility of the SMCs to notify the local police about the school hours, for appropriate enforcement.
- ▶ Where provided, on-street parking must adhere to the parking norms provided in IRC:67, IRC:103, IRC:35

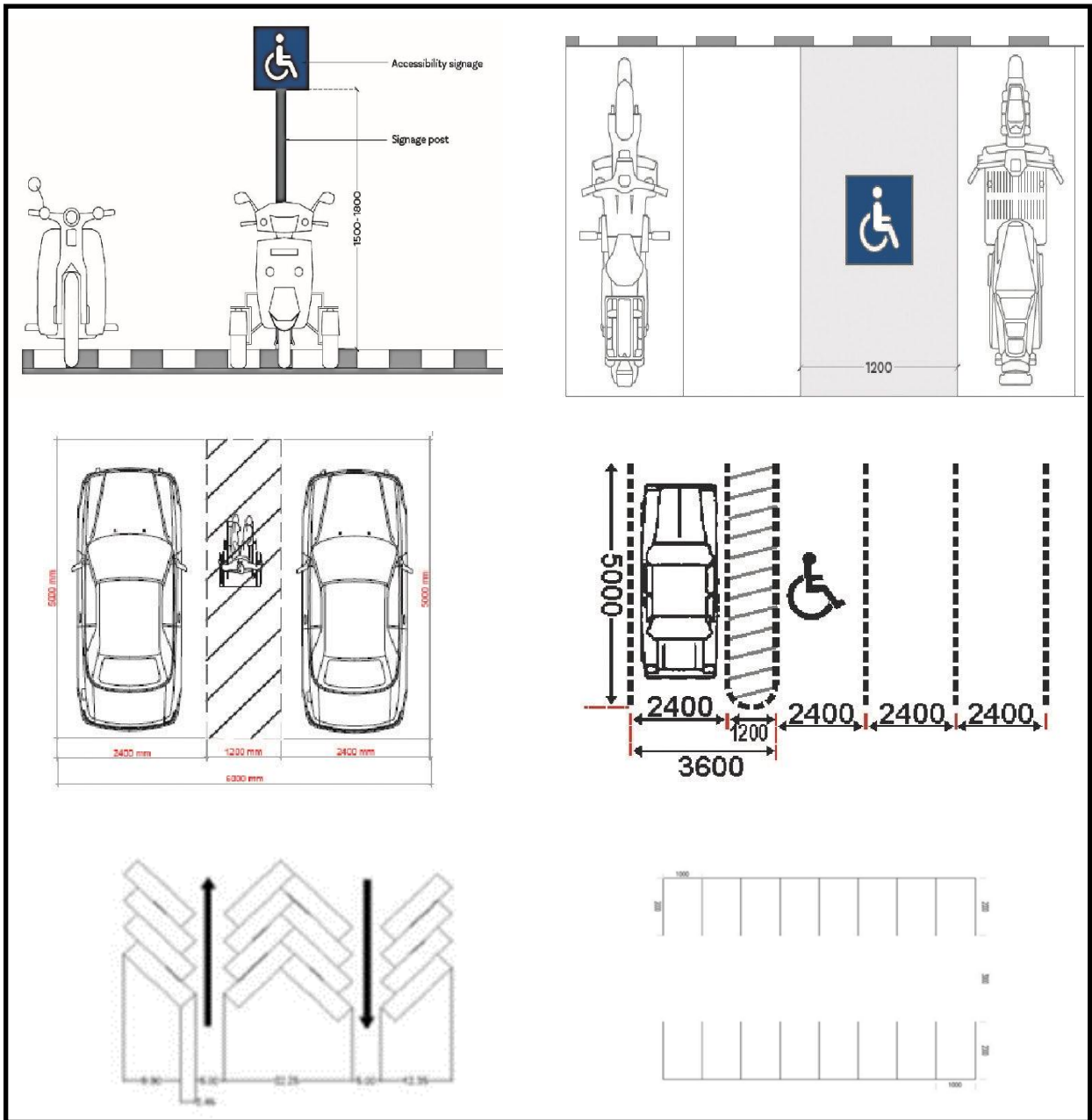





















Figure 23 Parking design as per IRC: 67, IRC: 103, IRC: 35







### 3 Signs and descriptions

Sign and Description	Figure
Mandatory / Regulatory and Compulsory	Direction Control Signs
To be located at stretch, where vehicle need to stop before entering a main carriageway.	 <p>Stop Sign</p>
To reduce vehicle speed to improve pedestrian safety during times of high pedestrian activity (i.e. arrival and dismissal). Oversized sign may be used for applications that require increased emphasis, improved recognition or increased legibility.	 <p>Speed Limit Sign</p>
For sections of bad accident history or substandard curves, speed limit sign can be provided in yellow backing board to make it more prominent.	 <p>Speed Limit Sign with Backing Plate</p>
The sign should be provided on the roads where No Parking of vehicles is allowed. This sign may be used along with time restriction indicating morning and evening peak periods.	 <p>Parking Prohibited</p>
The sign should be erected where parking is not allowed on the footpath.	 <p>Parking Prohibited on the Footpath</p>
This sign shall indicate the point at which all prohibitions notified at the beginning of school zone for moving vehicles ceases to apply.	 <p>Restriction Ends</p>

<p>This sign shall mean that only pedestrians are allowed, and the traffic is not allowed on this road / carriageway. The sign may be supported by supplementary plate with "PEDESTRIANS ONLY" written on it</p>	 <p>Pedestrian Only</p>
<p>The sign shall notify cyclists that they must use the cycle track at the entrance to which it is placed and shall notify the drivers of other vehicles that they are not entitled to use the track.</p>	 <p>Compulsory Cycle Track / Cycle Only</p>
<p>This sign shall be used to segregate cycle and pedestrian lanes.</p>	 <p>Compulsory Cyclist and Pedestrian Route</p>
<p><b>Cautionary Signs / Warning Signs</b></p>	
<p>Cautionary signs should be provided at the start of a school zone to warn motorists of the presence of a school and hence the possibility of children entering the roadway. The background of school zone ahead sign shall be fluorescent yellow green colour.</p>	 <p>School Ahead with fluorescent Yellow Green Background</p>
<p>The sign should be erected in advance on approaches to at-grade pedestrian crossing.</p>	 <p>Pedestrian Crossing</p>
<p>For sections of bad crash history or substandard curves, where visibility of the crossing is impaired by a bend or hump in the road pedestrian crossing sign can be provided in yellow backing board to make it more prominent.</p>	 <p>Pedestrian Crossing with Backing Board</p>

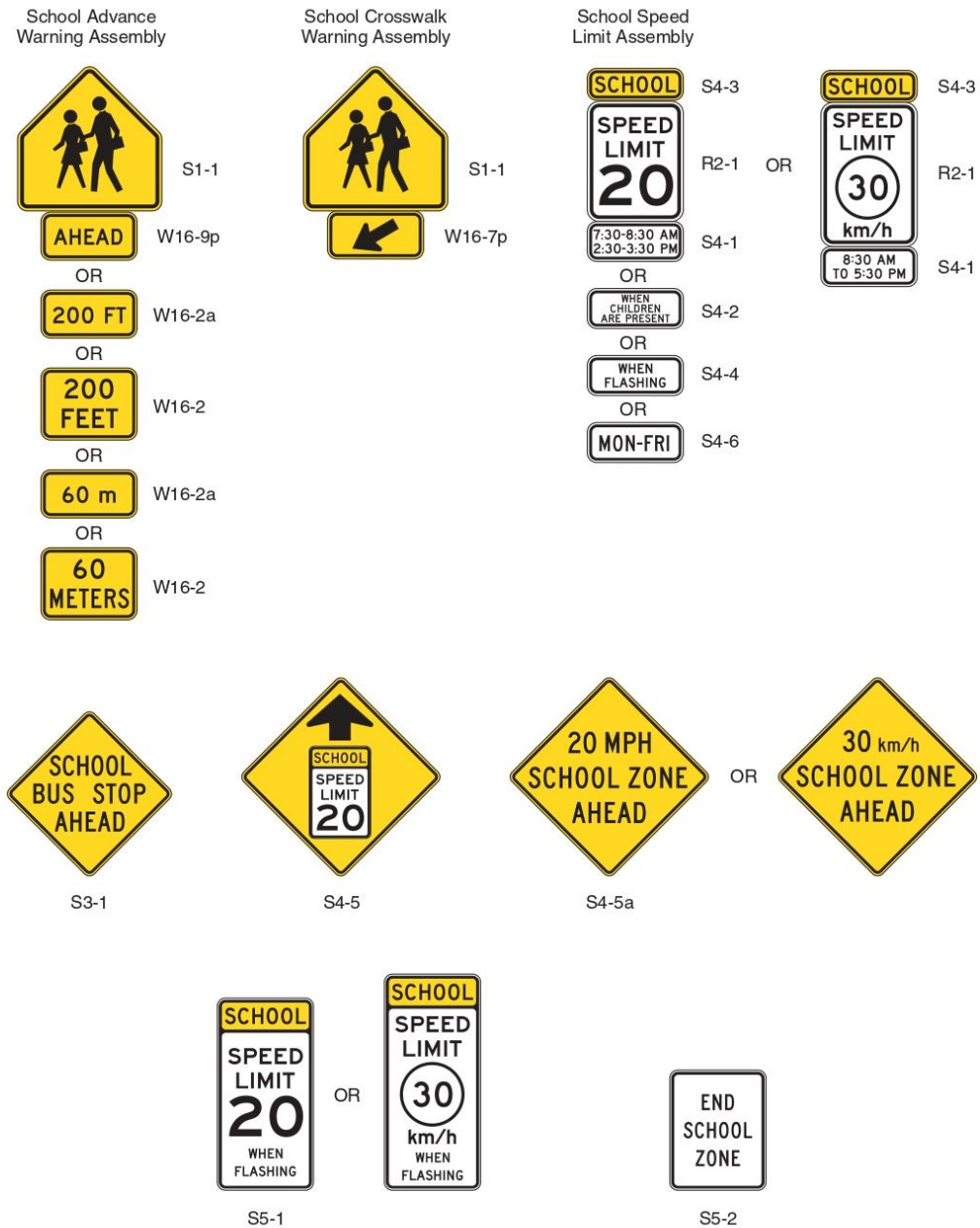


<p>This sign is posted in situations where the Cycle Route is approaching, and drivers are required to slow down. The sign should be erected in advance of cycle crossing.</p>	 <p>Cycle Route Ahead</p>
<p><b>Facility Information Signs</b></p>	
<p>This sign provided information about cycle lane to road users</p>	 <p>Cycle Lane</p>
<p>This sign shall be used to inform the vehicles about Contra flow of cycles and shall be installed before beginning of such lane.</p>	 <p>Contra Flow Cycle Lane</p>
<p>This sign shall be used at pedestrian crossing to inform the road users about the presence of pedestrian crossing.</p>	 <p>Pedestrian Crossing Information</p>
<p>This sign shall be installed near the speed breakers / Humps to inform the road users about the exact location of the hump.</p>	 <p>Speed Hump</p>
<p>This sign should be erected at the places where the buses are designed to stop.</p>	 <p>Bus Stop</p>
<p>This sign is installed to inform the drivers of the presence of reserved bus lane in the carriageway.</p>	 <p>Bus Lane</p>

<p>Dedicated and marked parking should be provided by the institution either within premises or at the entrance and shall not spill over to connected public roads.</p>	 <p>Parking</p>
<p>The accessible parking area should be indicated using a signage reserved for vehicle parking for users with disabilities. The wheelchair in the sign should always be shown facing to the right.</p>	 <p>Parking Information for Parking with Disabilities</p>
<p>The sign should be erected where the parking is not allowed to specific durations for traffic management.</p>	 <p>Parking Restriction for Traffic Management</p>
<p>The sign should be erected at Drop and Ride designated area for parents picking up or dropping their children by circulation of vehicles.</p>	 <p>Drop and Ride Facilities</p>
<p>Pickup and drop-off point near school entrances marked by wheelchair (access) symbol painted on the floor and on a pole of height 2 m shall be provided for passengers / children with impaired mobility as they often move slowly and therefore are more vulnerable.</p>	 <p>Accessible Boarding</p>
<p>Clear Road Marking to denote where parents are allowed to pick up and drop off the students.</p>	 <p>Marking of Student Drop off area</p>

### 3.1 Standards for School Signs

As per MUTCD: MUTCD provides guidelines for the installation positions of signs and plaques along with specific color requirements for school warning signs



Source MUTCD 11<sup>th</sup> edition, 2023

Figure 24 School Zone area signs as per MUTCD

### 3.2 School Zone Templates

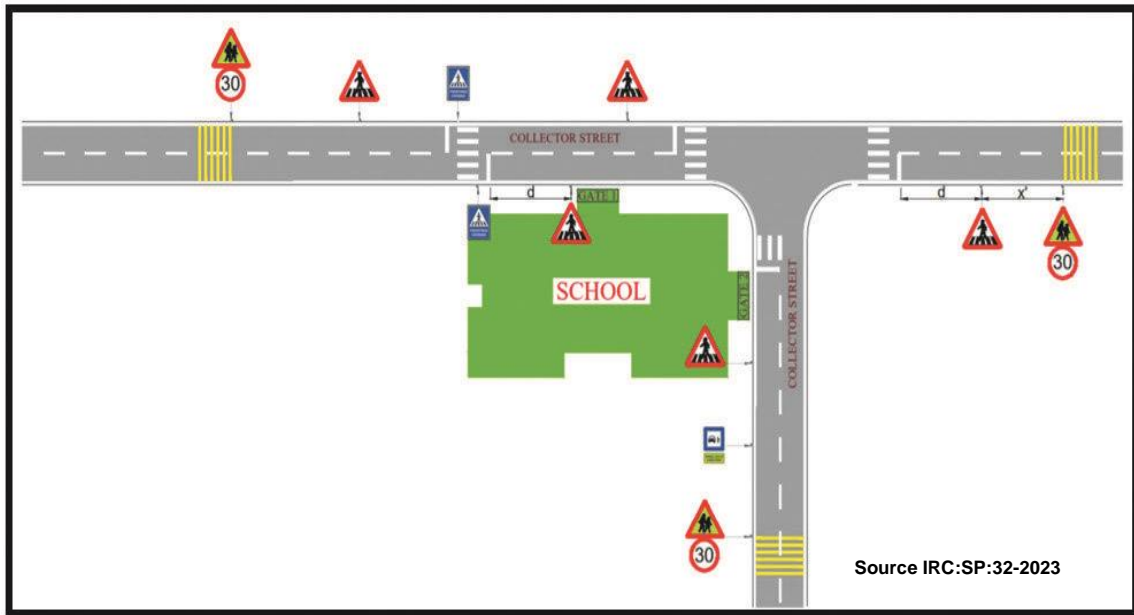


Figure 25 Typical Illustration of Various Measures required for the School Gate located on the Midblock Location of Two-Lane Bidirectional Road

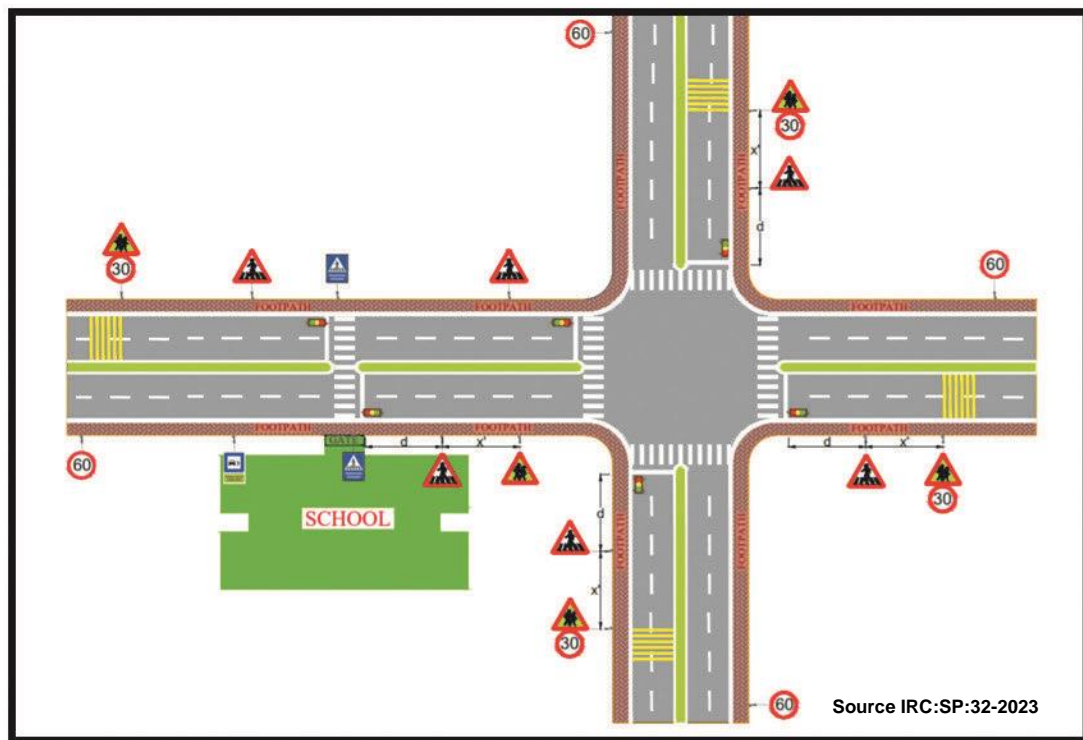
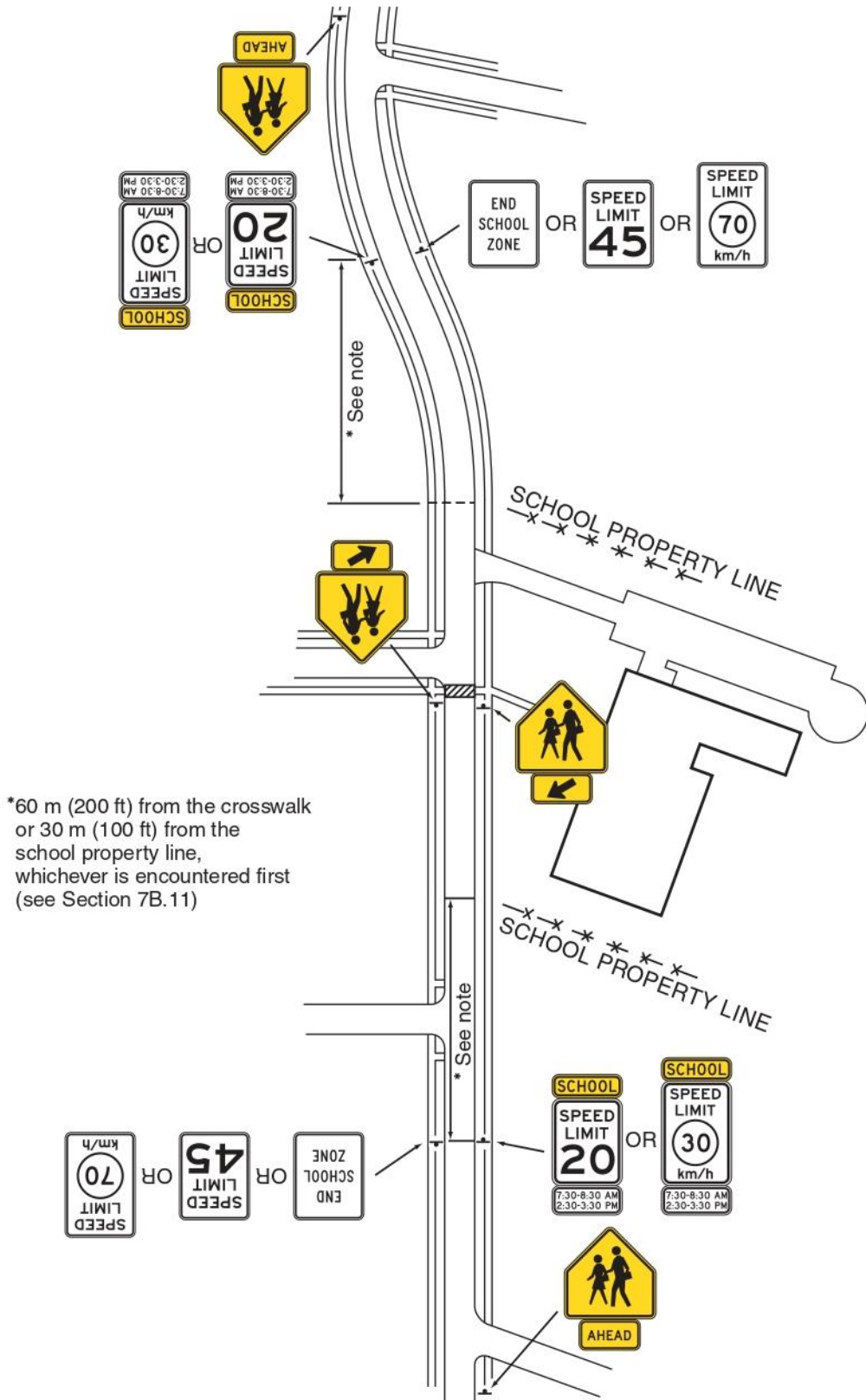


Figure 26 Typical Illustration of various measures required for the school gate located on midblock section of a four-lane divided road



Source IRC:SP:32-2023

Figure 27 Typical Illustration of school signs as per MUTCD

## 4 School Zone Safety Audit

### 4.1 Demographic details of the school

**Name:** Shamrao Shripati Bharate P.M.C. School

**Address:** 21, Giridhar Nagar, Warje, Pune, Maharashtra 411058

**GPS Coordinates:** 18.47981, 73.79889

**Campus Type:** Urban

### 4.2 Field Study

The school can be accessed by NDA road and three other local streets. This chapter discusses the observations of a field study done in the school zone.

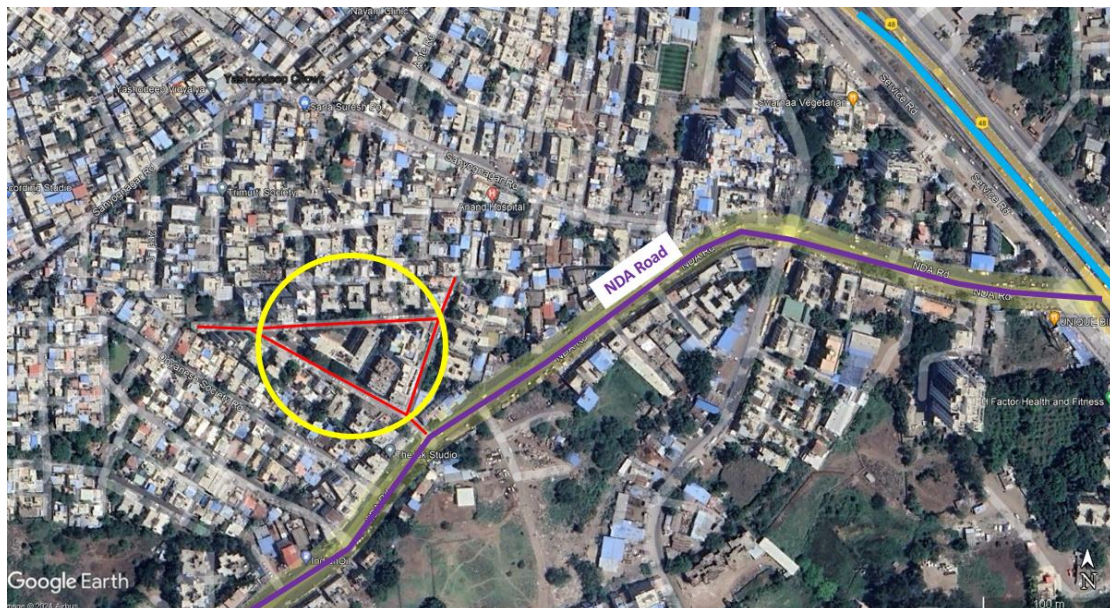


Figure 28 Study Area

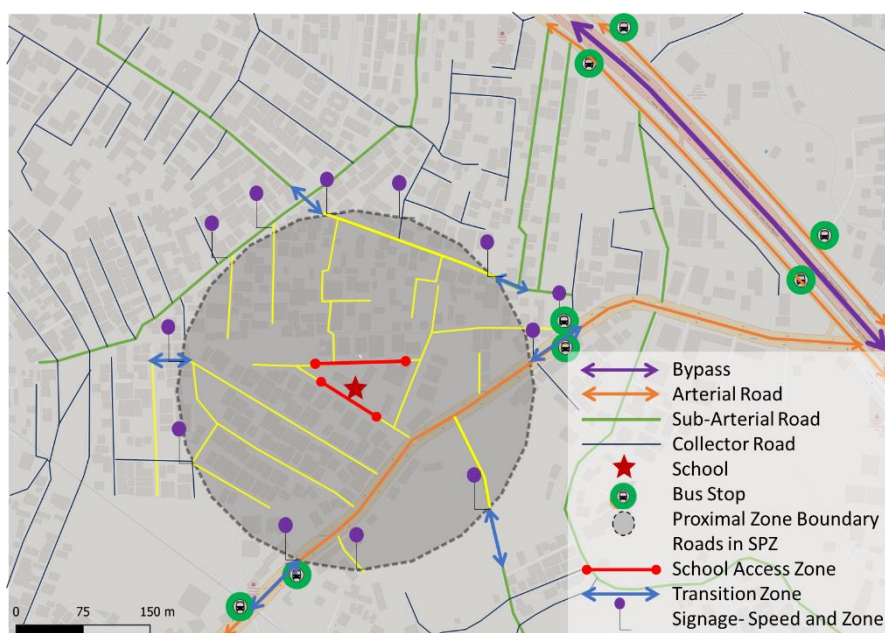


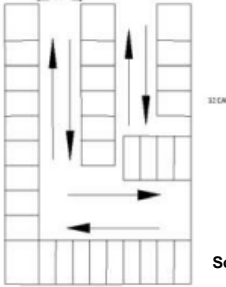




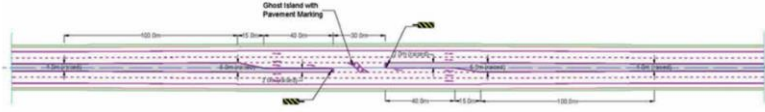


Figure 29 School Access and Proximal Zones

### 4.3 Safety Issues & Recommendations

No	Safety Concerns & Audit Findings	Risk	Recommendations	Priority
	Description (with Images if any)		Description (with figures if any)	
1	<b>Parking</b>			
1.1	<p>On-street parking should be avoided 50m before and after the entry/exit gates as per IRC 103-2022.</p> 	High	<p>Design of Pickup/Dropoff Bay using IRC SP:12 – 2015.</p>  <p>Source IRC: SP-32-2023</p> <p>Dedicated and marked parking with roadway marking as per IRC 35-2015 and signs as per IRC: 67 – 2022 should be provided as shown in the example.</p>	Highly Desirable

			 <p>Source IRC: SP:12-2015</p>   <p>Fig. 6.10 No parking</p>  <p>Fig. 6.13 Parking</p> <p>Source IRC: 67-2022</p>	
2	<b>Traffic Calming Measures</b>			
2.1	<p>Tabletop crossing Improperly designed tabletop crossing.</p> 	Very High	<p>Redesign pedestrian crossing with U-turn facility as per IRC 84:2019.</p>  <p>Fig. 3.7 Layout for U-Turn</p> <p>Source IRC 84:2019</p> <p>Provide physical traffic calming measure like a Trapezoidal Hump should be provided before crossing to</p>	Essential
				Essential



reduce traffic speed. As per IRC 99:2018

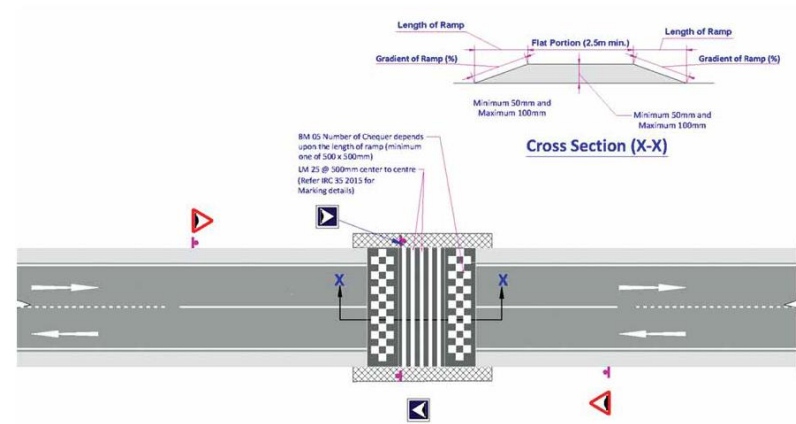

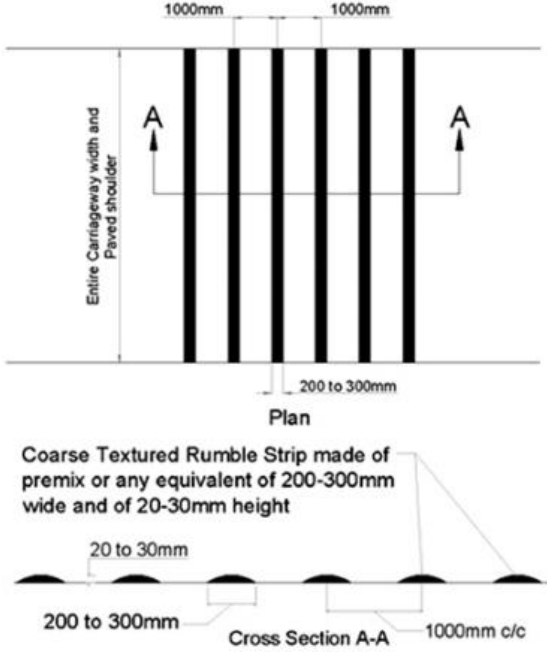


Fig. 3.2 Geometric Details of Trapezoidal Road Hump Source IRC:35-2015

<p>2.2</p>	<p>Rumble strip Rumble strips not as per standards</p> 	<p>Medium</p>	<p>Rumble strips must be provided according to IRC:99-2018</p>  <p><b>Fig. 2.6 Rumble Strip (Not to Scale)</b> Source IRC:99-2018</p>	<p>Desirable</p>
<p>3</p>	<p><b>Pedestrian Infrastructure</b></p>			

3.1

### Footpath

The footpath around the entry/exit gates were narrow and encroached at some places



Medium

Footpath of Minimum 2m width should be provided along the road as per IRC 103: 2022. The footpath should be barricaded with guard rails to prevent direct access to road.

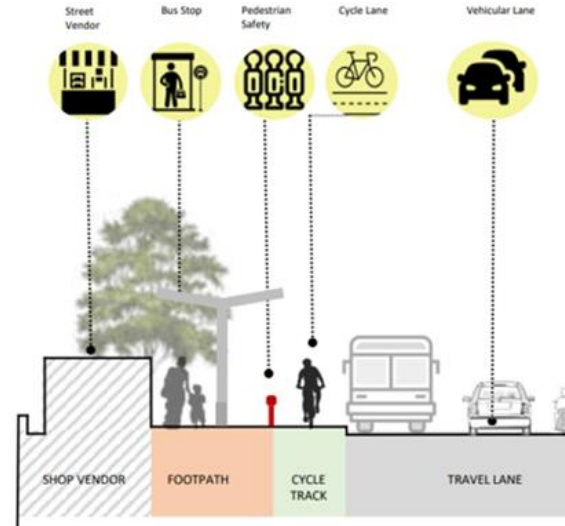



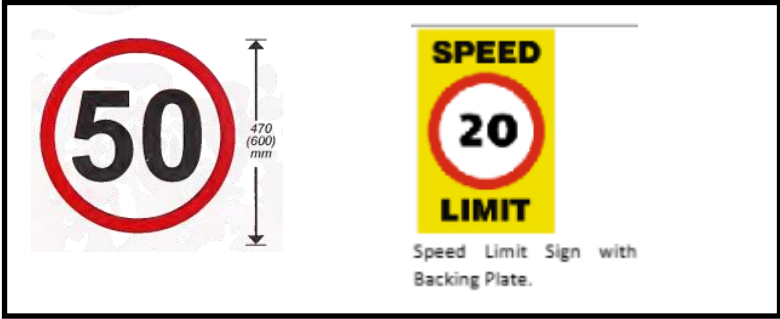




Figure 5-13: Guard rails and organisation of pedestrian space (projected cycle wheels are potential accidental hazard to children/ adults with visual impairment. Walkway shall show tactile paver 600mm away from the cycle wheel)

Desirable

4	<b>Signs</b>			
4.1	<p>School Zone Warning Sign School Zone Warning Sign not as per IRC 67:2022</p> 	High	<p>The “School Ahead” sign should be provided well in advance with supplementary signs to indicate the distance of school/school zone. “Speed Limit” sign should also be provided along with “School Ahead” sign.</p>  <p>School Ahead with fluorescent Yellow Green Background</p> <p>Source IRC: 67-2022</p>	Highly Desirable
4.2	<p>Speed Limit Sign Speed limit signs were missing.</p> 	High	<p>School children are more prone to commit mistakes while negotiating with traffic. Hence, it is recommended that vehicles should travel at maximum speeds of 25 kmph near schools as per IRC:99-2018 Restrict speed of heavy vehicles to 20 km/h and cars to 30 km/h. Restrict entry of heavy vehicles except school buses</p>  <p>Speed Limit Sign with Backing Plate.</p> <p>Source IRC: 67-2022</p>	Highly Desirable

<p>4.3</p>	<p><b>Pedestrian Crossing Sign</b> Missing Pedestrian crossing sign</p> 	<p>High</p>	<p>Provide pedestrian crossing warning sign and information sign</p> <div data-bbox="1032 268 1800 587" style="border: 1px solid black; padding: 10px;">  <p style="text-align: center;">Pedestrian Crossing Pedestrian Crossing Information</p> </div> <p style="text-align: right;"><b>Source IRC: 67-2022</b></p>	<p>Highly Desirable</p>
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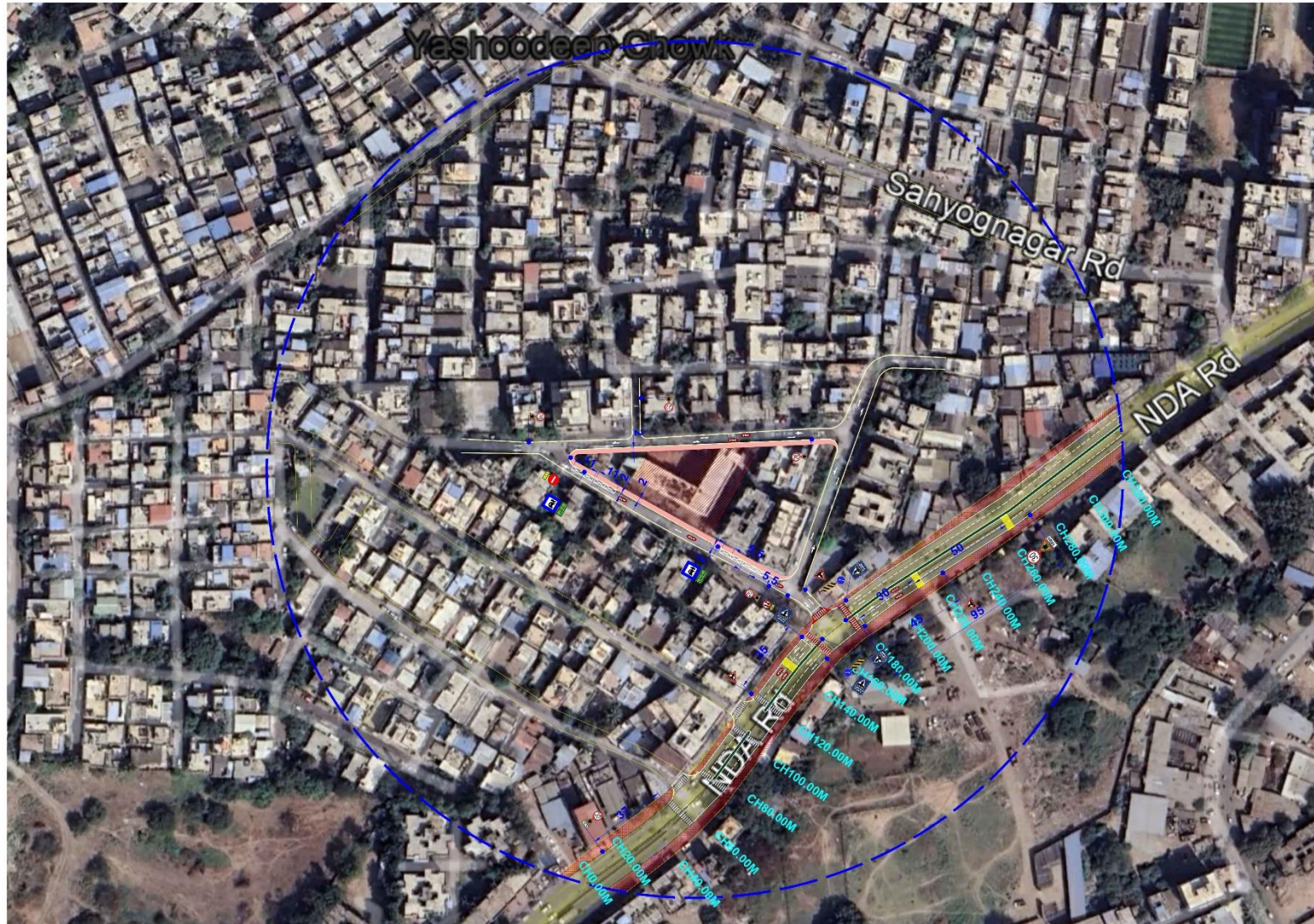
## 4.4 Field Study

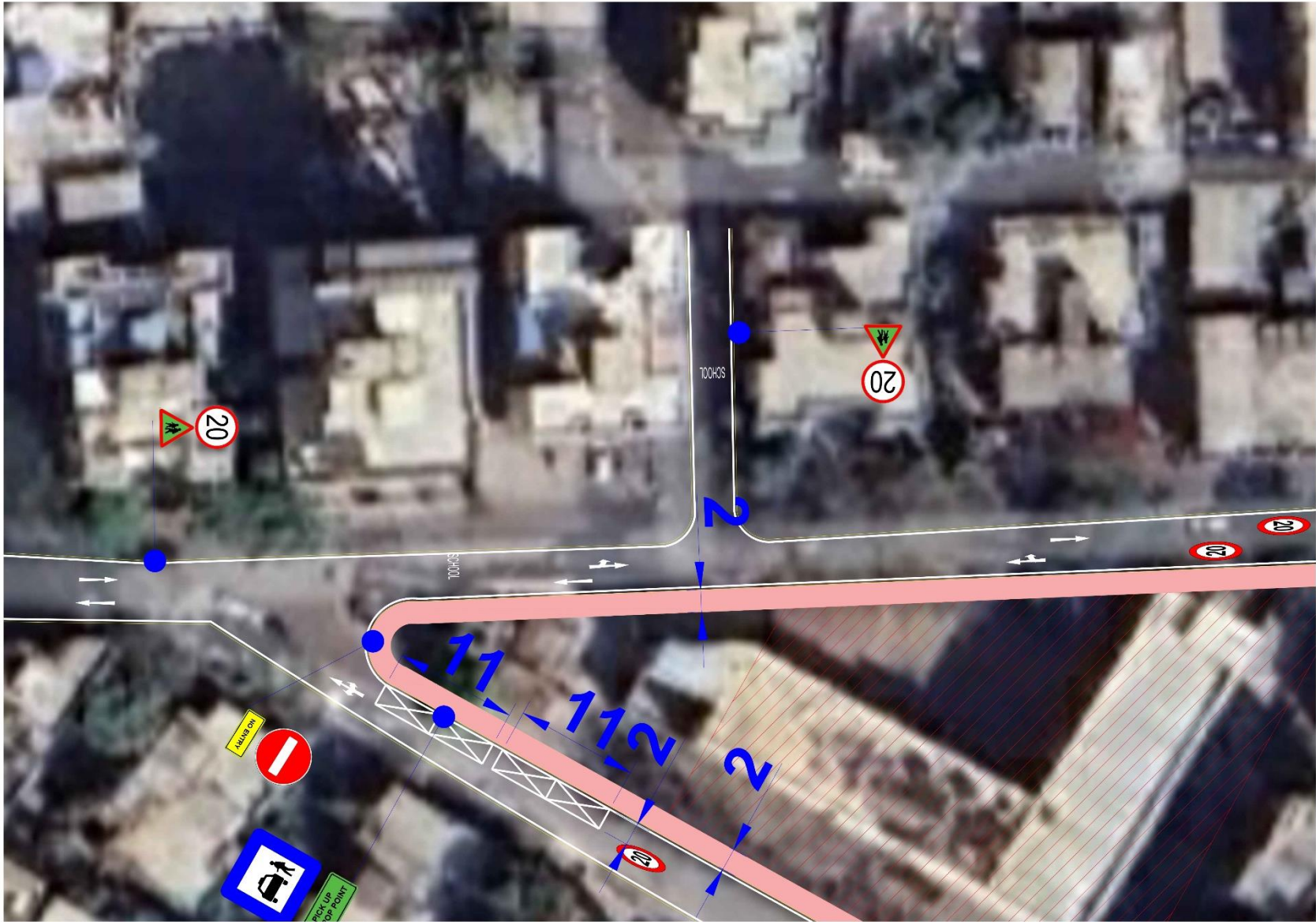


Figure 30 Views of various Road Signs and Zones

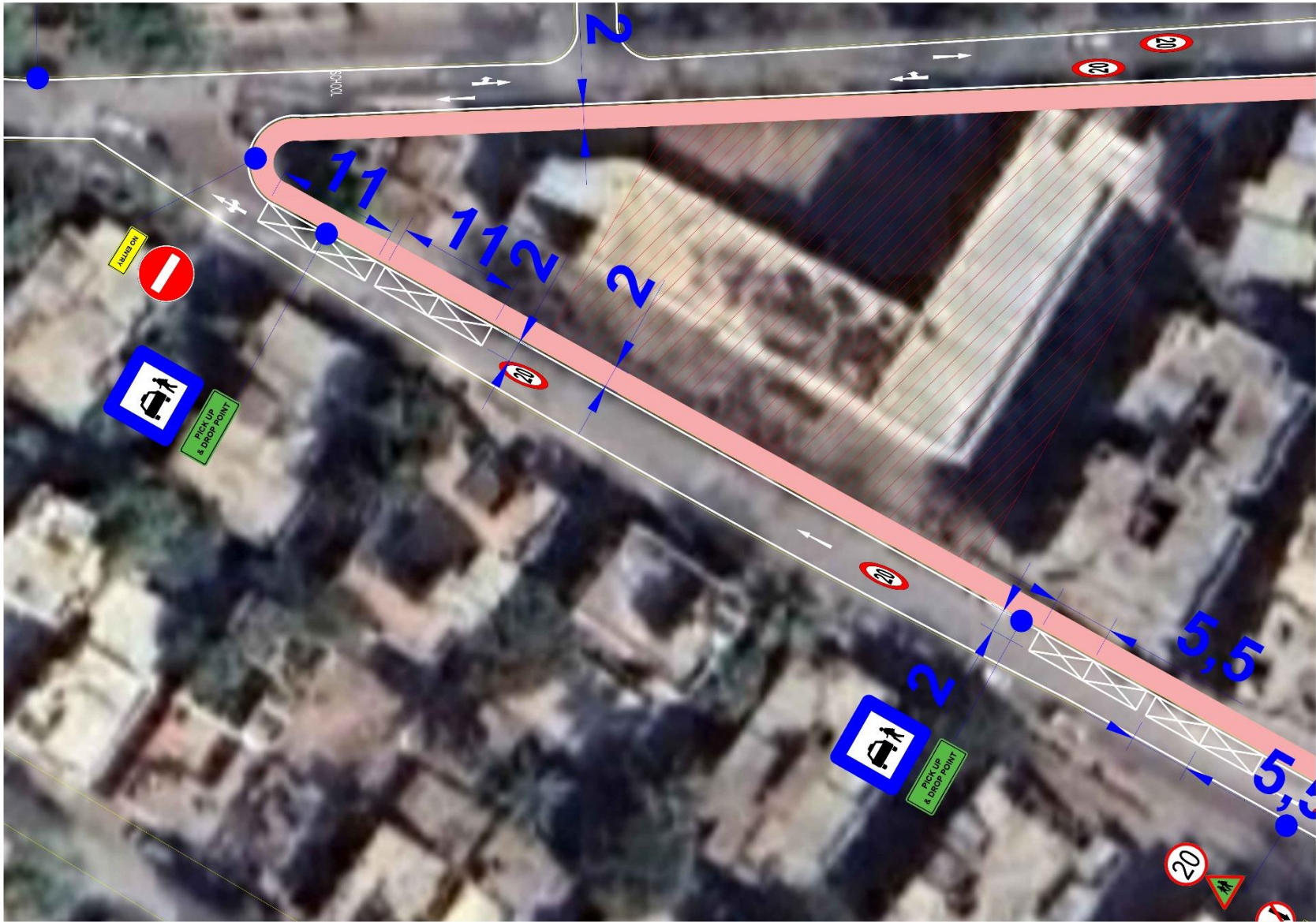
Source IRC: SP: 32-2023

#### 4.4.1 Proposed Layout Map for Road Signage and Marking

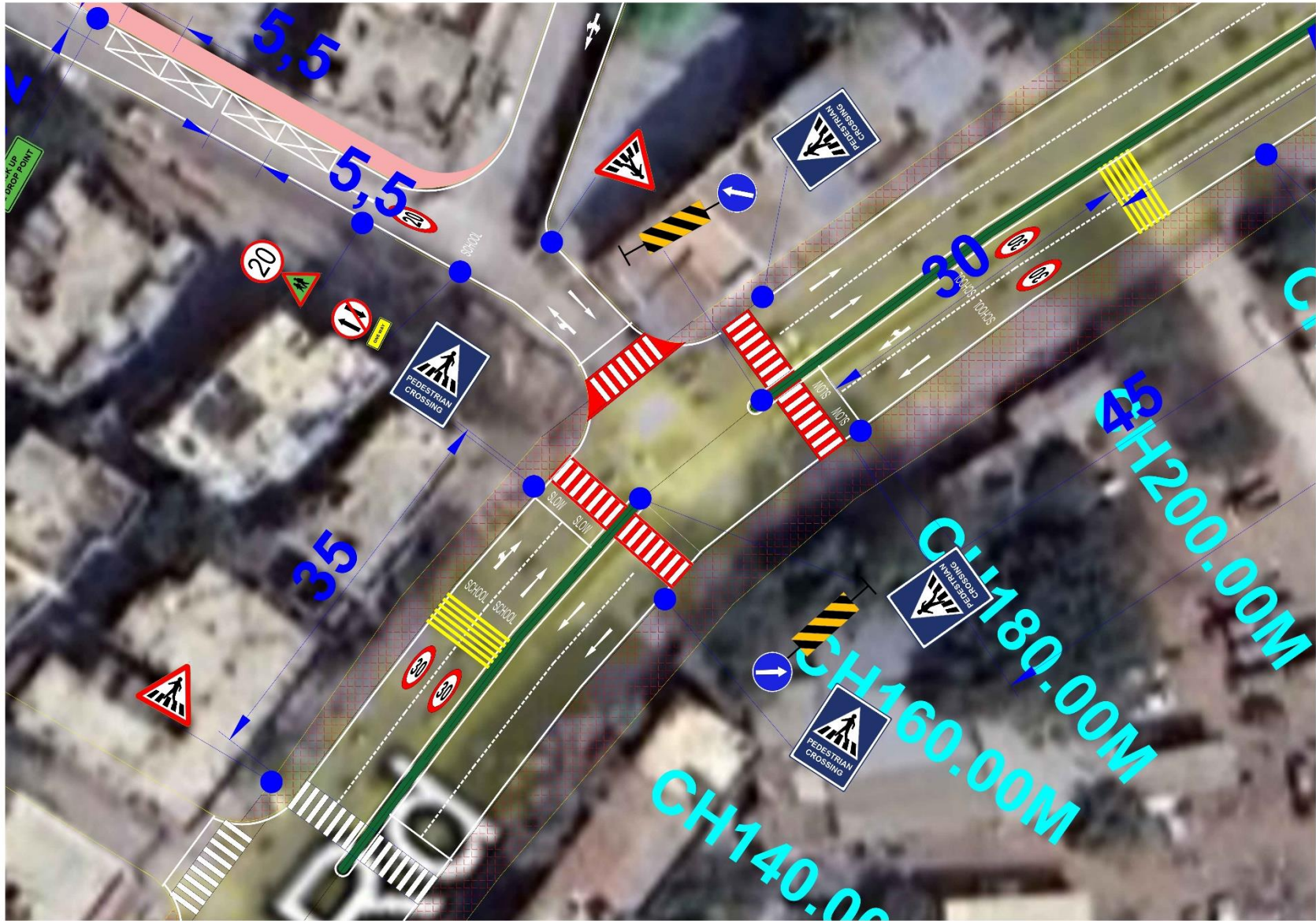








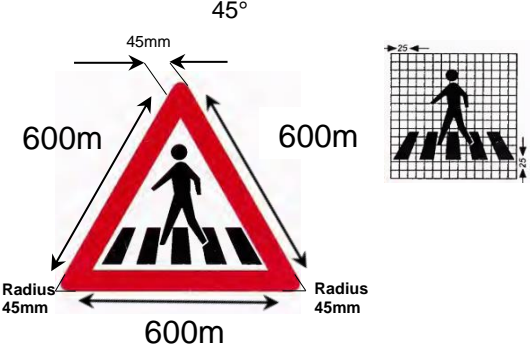
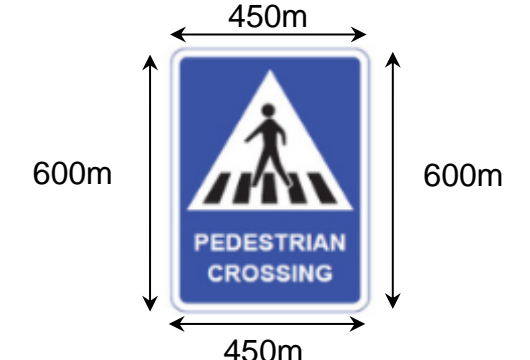
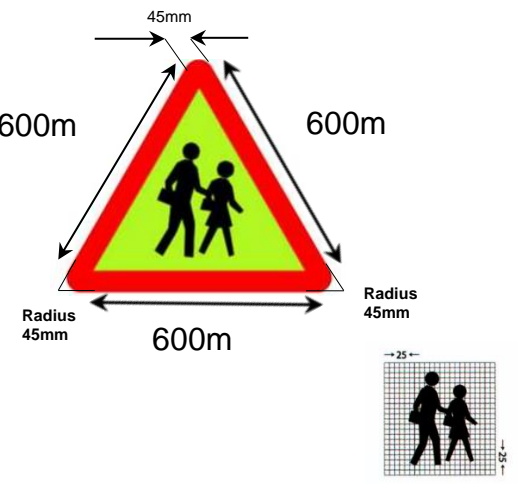
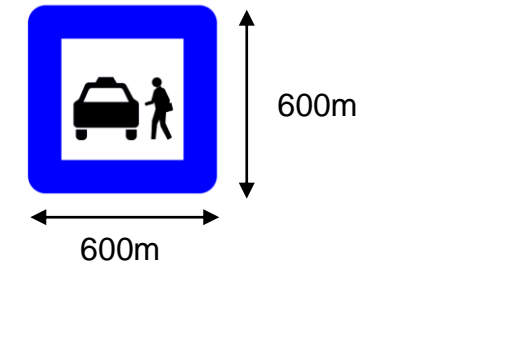


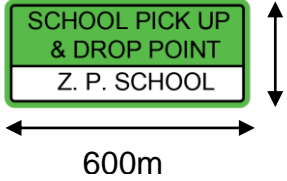
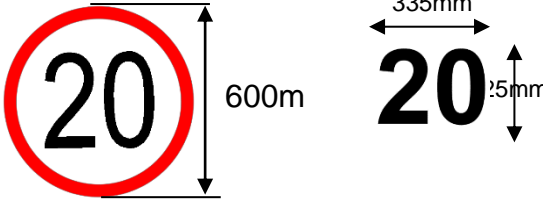
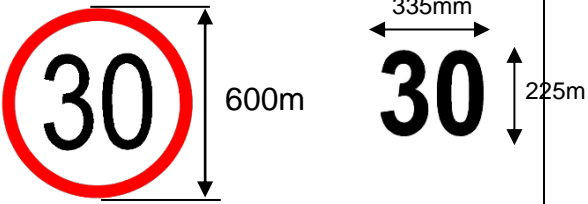
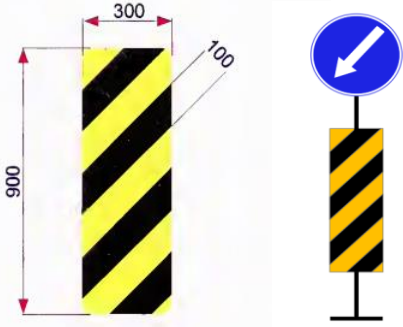
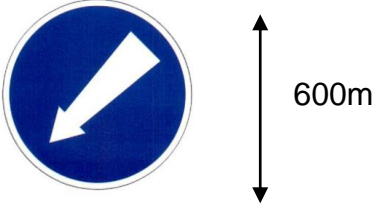


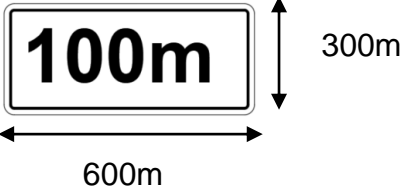
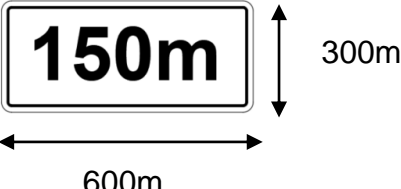
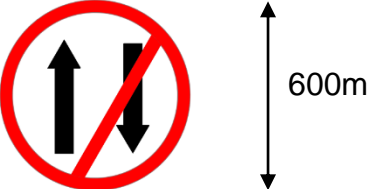
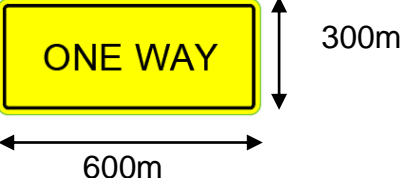
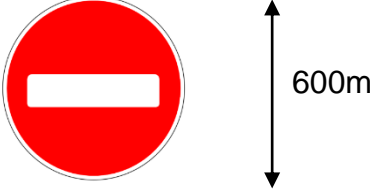
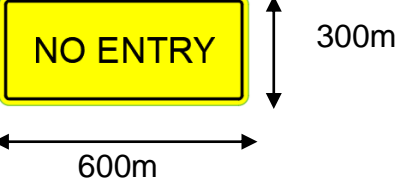




#### 4.4.2 List of required Road Signage and quantity

Sr. No.	Signage	Dimensions	Recommendations as per IRC	Quantity
1	Pedestrian Crossing	600mm side, 45 mm border		3
2	Pedestrian Crossing	Height 600mm, width 450mm		4
3	School Ahead	600mm side, 45 mm border		5
4	School Pickup & Drop Point	600mm side		2

5	Definition Plate			2
6	Speed Limit	600mm diameter with 45mm red border		3
7	Speed Limit	600mm diameter with 45mm red border		2
8	Object hazard(right)	900mm height, 300mm width, 100mm black bands at 45°	 <p data-bbox="730 1391 1121 1424">Fig. 15.77 Object Hazard (Right)</p>	2
9	Compulsory Keep Left	600mm diameter with 25mm white border	 <p data-bbox="715 1653 959 1675">Fig. 14.50 Compulsory Keep Left</p>	2

10	Definition Plate			1
11	Definition Plate			1
12	One Way	600mm diameter with 45mm red border		1
13	Definition Plate			1
14	No Entry	600mm diameter with 45mm red border		1
15	Definition Plate			1



#### 4.4.3 Road Marking Quantity

Sr No	Description			Length	Width	Area of Marking	Quantity	Total Area
				in metre	in metre	in sq m	in numbers	in sq m
1	Lane Marking for both ways		Dotted white	416	0.15	62.4	1	62.4
2	Edge Lane Marking for both ways		Solid continous white	1968	0.15	295.2	1	295.2
3	Stop Line Marking		Solid continous white	53.25	0.15	7.9875	7	55.9125
4	Pedestrian Crossing Marking		Solid White	3.5	0.5	1.75	74	129.5
			Solid White with red Boundary	2.5	0.5	1.25	35	43.75
			Red Boundary			111	1	111
5	Arrow Marking	Straight	Solid White	3.5	0.5	1.75	17	29.75
		Right Shared	Solid White	3.5	0.5	1.75	3	5.25
		Left Shared	Solid White	3.5	0.5	1.75	3	5.25
		Left and Right	Solid White	3.5	0.5	1.75	3	5.25
6	SLOW Marking			1.6	1.2	1.92	4	7.68
7	SCHOOL Marking			1.6	2.2	3.52	8	28.16
8	Speed Limit Marking			4.7	1.6	7.52	9	67.68
9	Pick Up Drop Off			136	0.1	13.6	1	13.6
10	Transverse Bar Marking		Solid Yellow	7.5	0.6	4.5	5	22.5
	<b>TOTAL</b>							<b>883</b>

## 5 Project Highlights



Figure 31 Interaction with Stakeholders