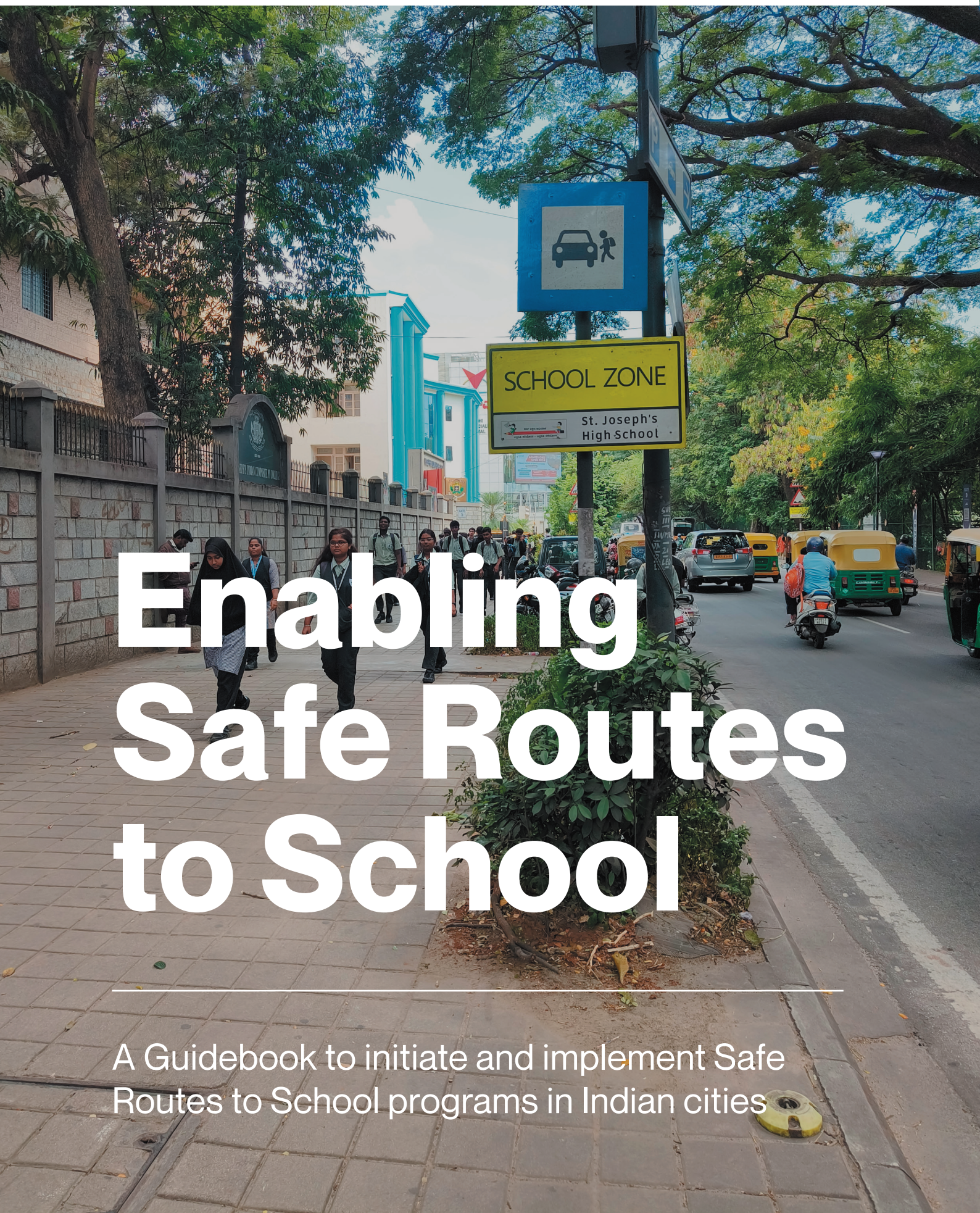


Enabling Safe Routes to School

A Guidebook to initiate and implement Safe Routes to School programs in Indian cities

Published by:

Deutsche Gesellschaft für

Internationale Zusammenarbeit (GIZ) GmbH

Registered offices

Bonn and Eschborn, Germany

Green Urban Mobility Innovation Living Lab (GUMILL)

B-5/2, Safdarjung Enclave

New Delhi – 110029 India

T 011-49495353

F 011-49495391

E: suid.india@giz.de | www.giz.de/india

Officer Responsible for Commission

Manjunath Sekhar

Head, Green Urban Mobility Innovation Living Lab

mailto:manjunath.sekhar@giz.de

Contributors (in alphabetic order)

Ankit Bhargava (Sensing Local), Devrishi Bharadwaj GUMILL (GIZ), Harpreet Singh (Road Safety Auditor), Nithya Gowda (Sensing Local), Sobia Rafiq (Sensing Local), Sristi Mehar (GIZ), Vidhya Venkatesan (Sensing Local),

Editing and design

Sensing Local

Acknowledgements

Mr BS Prahalad, Chief Engineer – Bruhat Bengaluru Mahanagara Palike (BBMP)

Mr M N Anuchet IPS, Joint. Commissioner of Police (Traffic), Bengaluru City

Ms Sushma, Assistant Engineer - BBMP

Ms Sonal Kulkarni, Chief Research and Innovation Officer – Directorate of Urban Land Transport (DULT)

Ms Shreya Satish, Assistant Urban Planner -DULT

Ms Nivetha K, Assistant Urban Designer - DULT

Contact

GIZ is responsible for the content of this publication.

On behalf of the German Federal Ministry for Economic Co-operation

and Development (BMZ)

श्रीनिवास आर कटिकिथाला, भा.प्र.से.
सचिव
Srinivas R Katikithala, I.A.S.
Secretary

भारत सरकार
आवासन और शहरी कार्य मंत्रालय
निर्माण भवन, नई दिल्ली–110011
Government of India
Ministry of Housing and Urban Affairs
Nirman Bhawan, New Delhi-110011

FOREWORD

It is almost axiomatic that in modern India's cities, the most common and a nagging anxiety of all mothers is the safe journeys of their children to and back from school, and day after day. The Guidebook Safe Routes to School aptly lists Schools as the foremost stakeholders. Safety begins with and is about creating an environment where everyone would feel secure about themselves and their needs. For inculcating safety in the young, school is the first domain but the culture must radiate outward with collaboration of the community and fully supported by the local governments. Among the most pressing concerns is about how school-children navigate their commutes; the underlying issues require innovative and sustainable solutions that will prioritize safe accessibility to transport, safe side-walks and crossings at intersections.

The Safe Routes to School Program Toolkit is fundamental, offering a comprehensive framework to help cities and towns deliver safer, more accessible, and healthier commuting for children and encouraging walking and cycling as viable modes of travel to school. SRTS program promotes not only physical well-being but also contributes to reducing traffic congestion and improving air quality—key objectives of India's Smart Cities Mission and AMRUT.

This toolkit serves as a valuable resource for stakeholders across the urban mobility spectrum—school administrators, city planners, parents, law enforcement agencies, and local governments—providing practical guidance on how to assess, plan, and implement safe routes for school-going children. It encourages collaboration and community involvement, ensuring that the solutions developed are both inclusive and tailored to local needs.

The Safe Routes to School Program Toolkit aligns with the Government of India's commitment to fostering citizen-centric approaches to urban mobility, where every child has the right to a safe and joyful journey to school. I urge all stakeholders to avail this meticulously prepared resource, leverage its insights and deliver to the society it's a safe, sustainable, and resilient urban environment for citizens of the future.

(Srinivas Katikithala)

New Delhi
October 21, 2024

Office Address: Room No. 122 'C' Wing, Nirman Bhawan, New Delhi-110011
Tel.: 011-23062377, 23061179; Fax: 011-23061459; Email: secyurban@nic.in
Website: www.mohua.gov.in

JAIDEEP
Officer on Special Duty (UT) &
Ex-Officio Joint Secretary

Tel. : (011) 23061114
Fax : (011) 23061102
E-mail : osdut-moud@gov.in

भारत सरकार
आवासन और शहरी कार्य मंत्रालय
निर्माण भवन, नई दिल्ली–110011
GOVERNMENT OF INDIA
MINISTRY OF HOUSING AND URBAN AFFAIRS
NIRMAN BHAWAN, NEW DELHI-110011

Prologue

In the swiftly urbanizing landscape of India, the safety and well-being of our children are of paramount importance. As cities expand and populations grow, ensuring that students can travel to school safely is both a critical challenge and a unique opportunity. The way we approach urban mobility for schoolchildren not only impacts their safety but also shapes the broader health and liveability of our cities. It is within this context that I am proud to introduce the Safe Routes to School Program Toolkit—a resource dedicated to improving the safety and accessibility of school routes across India.

Urban mobility improvements are generally perceived to be as infrastructure developments with capital inputs. There are however influences that change the way users will exploit the assets while pursuing individual goals and economic progress. Safety and wellbeing of the most vulnerable, the youngest section of the society, appears to command a lower priority. Consciously conscientiously we must adopt solutions that are not only innovative but also children-centric, sustainable, and grounded in their specific needs. The Safe Routes to School initiative is in keeping with this principle, offering a practical approach that empowers schools, parents, local governments, and communities to work together in making journeys to school commutes safe for the youngest commuters.

This toolkit serves as a comprehensive resource for stakeholders invested in improving school transportation safety. It offers step-by-step guidance on assessing, planning, and implementing safe routes, ensuring that our streets are more inclusive, sustainable, and secure for the future. As the society strives to create safer, smarter, and healthier urban environment, I am certain that this toolkit will spur programs, actions and collaborations at local level, helping cities develop the culture so necessary to safeguard the journeys of school-children.

Jaideep

Preface

India's cities are facing a pressing need to make school commutes safer and healthier for children. As urban congestion grows and air quality worsens, the safety of students traveling to and from school has become a major concern for both parents and communities. The Safe Routes to School Program was created to directly address these challenges. This initiative focuses on improving the safety and environment around schools by engaging three vital groups—school administrations, local communities, and government authorities. Together, they work to design and implement measures that ensure safe, accessible, and clean routes for children, relieving the everyday concerns of parents while promoting healthier travel options

The toolkit also champions a shift towards active mobility—encouraging and educating children to walk or cycle to school as a means to not only improve their health and well-being but also to contribute to reducing traffic congestion and pollution in cities. By promoting these modes of travel, we can instil a sense of responsibility in the younger generation, fostering a lifelong commitment to sustainable transport choices. Beyond infrastructure improvements, it advocates for a behavioural change in how children and their families should perceive commuting. The program seeks to embed sustainable habits early in life, helping young citizens develop a deeper appreciation for environmentally friendly transport options. Thus, creating a ripple effect that can reshape urban mobility patterns over time, making walking and cycling a preferred choice for future generations.

As cities grow, their mobility systems must evolve to meet the changing needs of their populations. The Safe Routes to School Program Toolkit provides practical guidance for stakeholders—parents, schools, urban planners, and local governments—on how to collaboratively design and implement safer routes for children.

This resource reflects the society's collective commitment to fostering active mobility and cultivating a culture of safety and sustainability in India's cities. By placing children at the heart of this transformation, we can inspire a new generation to embrace sustainable transport solutions that benefit not just today, but for years to come. With this document, stakeholders can explore ideas and strategies laid out and contribute to shaping a safer, healthier, and more sustainable urban future for the young commuters and future citizens.

Manjunath Sekhar
Head, Green Urban Mobility Innovation, Living Lab (GIZ)

Table of Contents

List of Abbreviations

SRTS *- Safe Routes to School*

RASTE *- Reimagining Active School Transit Experiences*

SSP *- Safe School Precinct*

SDG *- Sustainable Development Goals*

CBO *- Community Based Organisation*

PTA *- Parent Teacher Association*

SAZ *- School Access Zone*

SPZ *- School Proximal Zone*

TZ *- Transition Zone*

IRC *- Indian Roads Congress*

ECS *- Equivalent Car Space*

RWA *- Residents Welfare Association*

ULB *- Urban Local Body*

List of Tables

List of Figures

List of Images

1 Introduction

1.1 Setting the context

Rapid growth in Indian cities has resulted in intensifying vehicular traffic leading to crowded streets and intersections. In this context, safety of children during their commute to and from schools has become a pressing concern for parents, school administrations and children alike.

Tackling this issue requires a multi prong approach. There is a need to improve the infrastructure across footpaths and carriageways and influence behaviour change in both pedestrians and vehicle drivers to reduce conflict as well as better management of school induced traffic around school gates. Additionally, educating children about road safety and sustainable mobility is a vital investment in their future, helping them become responsible road users.

1.2 About SRTS

Safe Routes to School (SRTS) is a global initiative promoting safe, convenient, and active transportation for students travelling to and from schools. It focuses on improving pedestrian and cyclist safety, reducing traffic congestion, and enhancing community health and well-being. SRTS is more than just about reaching a destination; it's about ensuring their journey is enjoyable, safe, and healthy at every stage. SRTS initiative began in Denmark in the 1970s with the "Skolegade" (School Street) project, which aimed to create safer routes for children walking or biking to school. Since then, SRTS programs have expanded worldwide, including parts of Europe, Australia, New Zealand, Canada and the United States, with its comprehensive approach to road safety and active transportation, influencing education curriculums, city plans and city budgets.

A. Goals

Enhance Safety on walking and biking routes.

Increase Accessibility for all children, including those with disabilities.

Promote Active Transportation by encouraging more students to choose walking and biking over using motorised transport, contributing to healthier lifestyles.

Reduce Traffic Congestion around schools and create safer drop-off and pick-up zones.

Improve Air Quality by supporting eco-friendly transportation options.

Foster Community Engagement through collaborative efforts between schools, families, and local organisations to build stronger community ties.

Educate on Road Safety to teach essential road safety skills and responsible behaviours as pedestrians and cyclists.

Advocate for sustainable transport infrastructure and policies that support active mobility and road safety in the long-term.

B. Elements of SRTS: The 5 Es

There are 5 primary components to the SRTS program called the '5 Es'. Each of the Es, plays a vital role in fostering a safe and supportive environment for school children.

Evaluation

Assessing current conditions, identifying areas for improvement and tracking the impact and effectiveness of the program. Evaluation is an overarching element that features in all the other 4 Es.

Education

Teaching students, parents, and community members about safe transportation practices and the benefits of active commuting.

Encouragement

Promoting walking and cycling through events, incentives, and community outreach to make these activities more appealing.

Enforcement

Ensuring that traffic laws and safety rules are followed to protect students and reinforce safe behaviours.

Engineering

Implementing infrastructure changes, such as better footpaths, crosswalks, bike lanes, and traffic calming measures, to enhance safety.

C. Benefits for key stakeholders

There are three key stakeholders for an SRTS program - school management, local communities (neighbourhoods), and local government. The benefits for each of them are listed below -

School Management:

Schools can leverage the SRTS Program to cultivate vibrant, inclusive environments promoting safe and active journeys. The program offers numerous benefits, such as reduced traffic congestion around schools and safer and more efficient drop-off and pick-up zones. A calmer traffic environment will also enhance students' focus and academic performance. Furthermore, by promoting responsible travel habits, the program can foster positive behaviours and attitude change in students as future citizens. A strong commitment to road safety and active transportation will also boost the school's reputation as a conscious institution.

Local Community:

SRTS programs can help improve the overall quality of life in communities by addressing issues like traffic jams, rampant haphazard parking, unsafe walking conditions, and reduction of air pollution. The local community's role is crucial in identifying and reporting unsafe conditions (including encroachments on footpaths and poor walkability) and sustaining behavioural change, especially towards pedestrians and cyclists.

Local Governments:

Urban Local Bodies hold the keys to ensuring the success of an SRTS program. Allocating budgets and channelling non-lapsable funding towards such programs are essential to enabling decentralised impact to make cities safer for the most vulnerable - children. Further, enforcement of parking regulations and ensuring the rights of pedestrians and cyclists also require the proactive involvement of the government.

D. Alignment with UN's Sustainable Development Goals

SRTS is in alignment with the UN's Child Health Initiative (CHI), launched in 2016, which advocates for "Safe and healthy journeys to school to reduce emissions and exposure to air pollution, enable active transport, and ensure safe roads" along with Sustainable Development Goals 3, 4, 11, and 13. In addition it is also in alignment with the resolution A/RES/74/299 "Improving global road safety", proclaiming 2021-2030 as the Decade of Action for Road Safety, with the ambitious target of preventing at least 50% of road traffic deaths and injuries by 2030.

	**Goal #4** **Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**	**Target 4.7:** By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and culture's contribution to sustainable development.
	**Goal #3** **Ensure healthy lives and promote well-being for all at all ages**	**Target 3.9:** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
	**Goal #13** **Take urgent action to combat climate change and its impacts**	**Target 13.3:** Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
	**Goal #11** **Make cities and human settlements inclusive, safe, resilient and sustainable**	**Target 11.2:** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations,women, children, persons with disabilities and older persons. **Target 11.3:** By 2030, enhance inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management in all countries **Target 11.7:** By 2030, provide universal access to safe, inclusive and accessible green and public spaces, in particular for women and children, older persons and persons with disabilities.

Table 1: Alignment with SDGs

E. Safe Routes to School programs around the world

United States of America

The U.S. is among the most active countries implementing the Safe Routes to School program. The program was established in 2005 as a federally funded initiative, and many states and localities continue to fund and support it through state and local funding even after federal funding was cut in 2012. The program focuses on infrastructure improvements, safety education, and encouragement programs. Some cities like New York, Portland, and San Francisco continue to have comprehensive SRTS programs.

Image 1: 190th Street, Upper Manhattan. Source: DOT, NYC, revista110.online

Image 2: Macombs Rd at University Ave, BX. Source: Almond Zigmund for DOT, NY

United Kingdom

The UK has implemented various SRTS initiatives under different names, such as "Walking Buses" and "Bikeability." These programs are part of broader efforts to promote active transit to schools. Local authorities in the UK often fund these initiatives through transport and health budgets, often supplemented by national grants. London and other major cities such as Leeds, Glasgow, etc., have implemented successful programs, often integrated with broader transportation and environmental initiatives.

Image 3: School Streets Blenheim Primary School. Source: Leeds.gov.uk

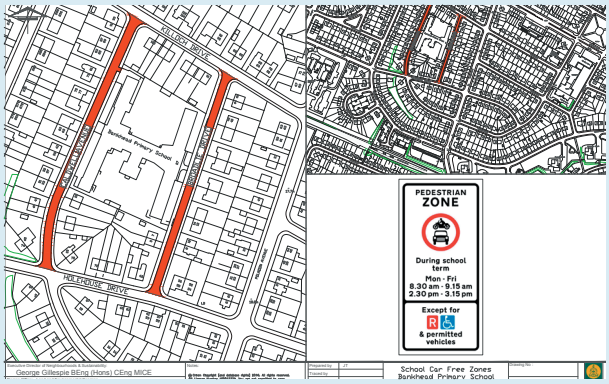


Image 4: Bankhead Primary School. Source: Glasgow.gov.uk

Australia

Australia has adopted SRTS programs in various states, focusing on improving infrastructure, education, and community engagement. Funding typically comes from state government budgets for transport and education, supplemented by local government contributions. States like Victoria and New South Wales continue to support SRTS through local government initiatives. The "Walk Safely to School Day" and other similar programs have been successful in increasing awareness and participation. Active school programs in Melbourne and Sydney continue to improve infrastructure and support behaviour change activities for walking and cycling.

Image 5: Slow down day. Source: Sylvia Liber

Image 6: Open street, Merri-bek City Council. Source: victoriawalks.org.au

Europe

Various EU countries have implemented SRTS programs under different names, often as part of broader sustainable mobility initiatives. Countries like Denmark, the Netherlands, and Germany continue to support SRTS programs as part of their commitment to sustainable transport. Ireland has been one of the most active countries in implementing SRTS across different towns and cities through the initiative of the Department of Transport and the support of the Department of Education. It is operated by the Green-Schools Programme in partnership with the National Transport Authority (NTA) and the local authorities.

Image 7: Primary School, Rushbrooke, Cobh, Co. Cork. Source: Cobh Tidy

Image 8: Kilcullenbridge road, Ireland. Source: kilcullenbridge.blogspot.com

Canada

Canada has implemented SRTS programs integrated with broader active school travel initiatives. Provinces like Ontario and British Columbia have ongoing programs supported by local and provincial governments. Funding sources include provincial government programs, local government contributions, and non-profit partnerships. Ontario's SRTS program has been recognized for its comprehensive approach, including infrastructure improvements, education, and community engagement.

Image 9: Source: toolsofchange.com

Image 10: Collingwood, Canada. Source: collingwoodtoday.ca

1.3 Using this guide

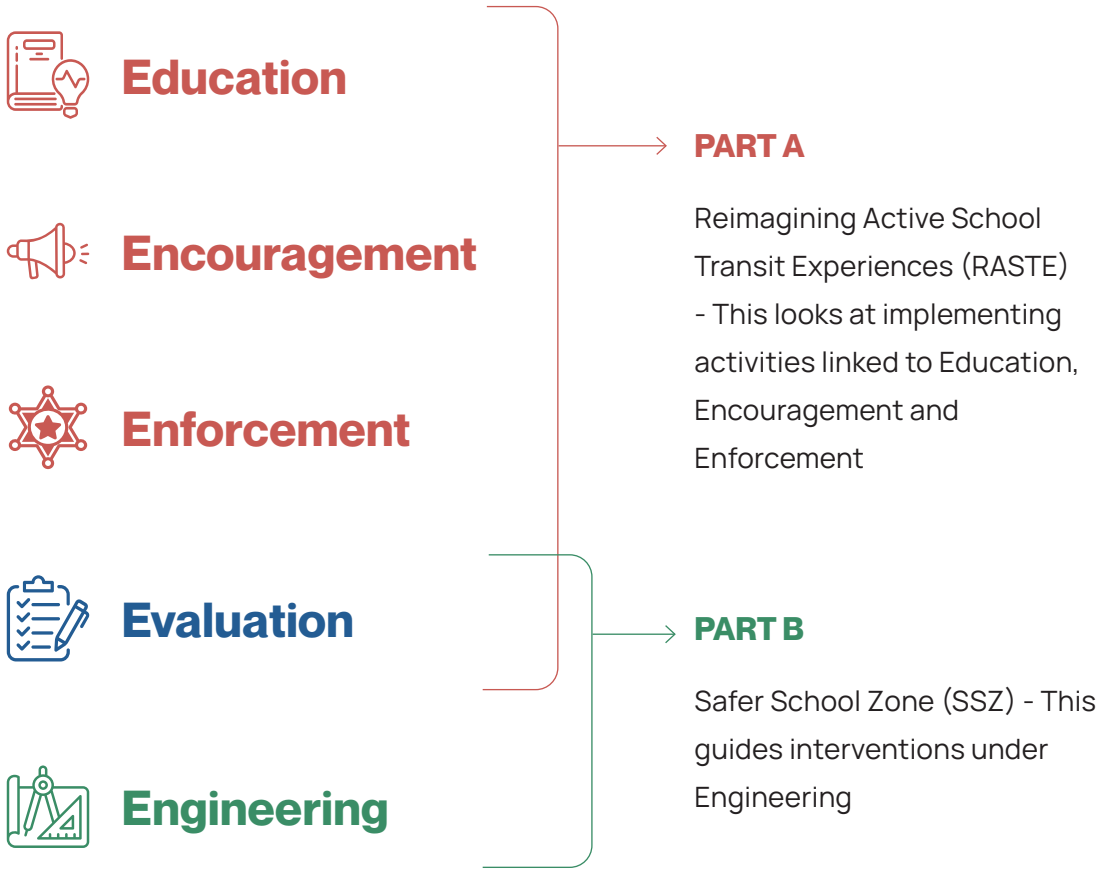
Following the 5 Es approach, the guide has been split into two main parts.

Part A: Reimagining Active School Transit Experiences (RASTE) deals with the first 3 Es - Education, Enforcement and Encouragement within the school premises to foster sustainable mobility choices and build a better understanding of road safety among students.

Part B: Safer School Zones (SSZ) deals with Engineering streets and junctions to improve the safety of students commuting to and from schools.

The 5th E: Evaluation cuts across both Raste and SSZ.

An SRTS program can use a combination of education, encouragement, enforcement and engineering centric activities to help achieve their goals. Every community, school or government organisation that takes the lead may follow a custom approach suitable to their unique needs. The next section further elaborates Steps to implementing an SRTS Program.



1.4 Implementing the SRTS Program

Implementing an SRTS program begins with identifying key stakeholders, including parents, teachers, and community members, and students to form a core group. The involvement of students in decision-making is crucial to understand their needs and preferences.

Once the team is in place, a comprehensive plan to implement RASTE activities and SSZ interventions needs to be created. Additionally, fostering collaboration with local organisations and authorities can support implementation. During roll out, it is important to continuously evaluate and monitor the program for its progress and success.

The following are the first 4 steps for initiating SRTS in a school.

A **Create the core team**

B **Launch the program**

C **Evaluate the baseline**

D **Create the plan**

A. Create the core team

Implementing an SRTS program begins with identifying key stakeholders, including parents, teachers, community members, and students to form a core team which will be responsible for the program's planning and implementation. The involvement of students in decision-making is crucial to understand their needs and preferences.

An indicative list of stakeholders is listed in the table below.

SCHOOL

- Principal and other administrators
- Students
- Teachers
- Parents (PTA/PTO reps.)

LOCAL GOVERNMENT

- Representation from the MLA or the Ward Councillor's office
- Urban Local Body
- Local ULB Engineer (Roads)
- Traffic police

LOCAL COMMUNITY

- Neighbourhood or community association members
- Local businesses or association members
- Local pedestrian, bicycle and safety advocates
- Citizen volunteers such as Traffic Wardens (if applicable)

OTHERS

- State or local pedestrian and bicycle coordinator such as Bicycle Mayor*
- Other experts such as - Transportation or traffic engineers, planner, public health professional
- CBOs
- Funding organisations

**Bicycle Mayor is a voluntary position by an active citizen working on improving cycling in a city. It is present across several cities in India*

Once the team is in place, a kick-off meeting needs to be conducted to help everyone understand the SRTS program and align on its larger objectives for the school.

The core team must also evaluate whether planning for a single school or a network of schools at a neighbourhood scale is strategically advantageous. A multi-school approach is particularly relevant where the induced traffic of one school affects the other, or there are co-benefits to another school because of interventions at one.

B. Launch the program

Global case studies recommend launching the SRTS program formally via a public event or sending information memos to all the stakeholders, particularly the parents, whose support is essential to operationalising the program in a school. Such gestures encourage participation and ownership over time.

C. Evaluate the baseline

The next step is to initiate a baseline capturing mobility patterns of school children, challenges they face, transport services provided by the school and traffic management taking place.

Three recommended surveys for base-lining are-

i. **Show of hands survey**
ii. **Parent survey**
iii. **School survey**

It must be noted that a fourth survey is proposed at the initiation of the Safer School Zone program to do a detailed street and junction field audit.

The baseline data from the 3 surveys mentioned above is to serve as a guide towards:

- **Identification of program activities relevant to the school**
- **Support measuring of progress and impact after intervention**
- **Providing evidence to request/advocate for permissions, cooperation or funding with relevant stakeholders, particularly the government agencies**

Show of hands survey

The show of hands survey is an easy to use, interactive survey to capture how many students of a given grade walk, cycle, car pool, take the bus, or use private transport and capture shifting trends over time.

Frequency: Multiple times in a year.

A class teacher(s) can build the initial baseline for at least five days during the time of taking attendance. It can be repeated regularly as deemed fit to assess variations due to seasons or other factors.

Mode: Conducted in the classroom by teachers. May be filled in a digital or manual form. An indicative format is given in Annexure I.

Data: Mode of transport used by a student to come to school and go home from school.

Expected outcomes:

- Mode Distribution: Understanding the dominant modes of travel among students to and from the school and their apprehensions if any.
- Pattern Identification: Detecting changes in travel behaviour based on season, weather, or day of the week.
- Build consciousness: Engage with students on the issue of sustainable transit to school and the difference they can make through individual actions.

Impact on the SRTS program:

- Targeted Interventions: Helps in tailoring interventions to specific needs of the students and the school.
- Data-Driven Planning: Provides a foundation for planning infrastructure improvements and awareness programs.
- Impact of interventions: If conducted regularly, it can help track modal shifts and changes in the behaviours of students.

ii Parent survey

Parents' survey is designed to understand a student's daily commute to and from school from the parent's perspective. The idea is to capture information such as distance travelled daily, mode of transport used, challenges incurred in using sustainable modes of transportation and willingness to shift, if currently not using them.

Frequency: One-time.

Mode: To be filled by parents. May be a digital form or entered manually during sessions like a parent-teacher meeting.

Data:

- Profile of the student: grade, gender.
- Distance from home to school.
- Typical mode of travel to and from school.
- Comfort level of parent to allow their child to walk, bicycle or ride the bus.
- The grade, parents will allow their child to walk, bicycle, or ride the bus/metro to school.

An indicative format of the survey is provided in Annexure II. Further, it is important to note that given the sensitive nature of the data, the school administration ought to be the sole custodian of this information. Anonymised analysis should be shared with the other stakeholders.

Expected outcomes:

- Travel insights: Detailed information on travel modes and distances.
- Parental concerns: Identifying specific safety or security concerns.
- Mode choice Analysis: Understanding the factors influencing the travel mode choice, like convenience, distance, or perceived safety.

Impact on the SRTS program:

- Engagement with parents/guardians: Fostering a community-focused approach to improving school routes.
- Safety Improvements: Provide evidence for selection of priority issues to be tackled via an SRTS program.

iii School survey

This survey is aimed at doing a preliminary assessment of the school environment and traffic management strategies undertaken by the school administration to streamline vehicular and pedestrian traffic at the pick-up and drop-off times. This survey will assess the environment directly outside the school. This assessment can be undertaken by the core team and done with the aid of parents and students. A sample survey is provided in Annexure III.

Frequency: One-time

Mode: Filled in by the school administration in digital or manual format.

Data:

- School drop-off and pick-up timings for different grades.
- Parking capacity available inside the school and street parking required outside the school for cycles, 2 wheelers, 4 wheelers, buses etc.
- Transport services provided by the school for students.
- Traffic management done by the school - Drop-off / pick-up, crossing guards, parking etc.
- Nature of traffic and level of safety experienced on the access road to the school.

Expected outcomes:

- School environment overview: Understanding current state of the environment such as traffic flows, parking around the school, existence of pedestrian facilities and infrastructure etc.
- Existing traffic management: Understanding practices currently followed in order to manage vehicular and pedestrian movement as well as areas of conflict and challenges.

Impact on the SRTS program:

- Understanding need for interventions proposed under SRTS program.
- Traffic management planning: The findings from this survey can directly inform the future of traffic management for the school.

D. Implement RASTE and/or SSZ

Once the baseline surveys are compiled, the core team must use this information to inform the identification of goals for setting up the SRTS program. Listed below are 5 key indicative goals which link back to concrete actions that can be undertaken under the RASTE and SSZ program. The process for creating and implementing a RASTE and SSZ is further detailed in Part A and Part B of this report respectively.

Goal 1	Cultivate conscious citizens who understand the environmental impact of transportation choices.	**Education**
Goal 2	Empower parents, students and other stakeholders for safe commuting to and from school.	**Education**
Goal 3	Enable a conscious shift towards sustainable transportation modes by fostering a culture of active commuting among students, teachers, and parents for a safe and healthier lifestyle.	**Encouragement**
Goal 4	Support the development of safe walking and cycling infrastructure to make sustainable modes of transport more fun, attractive and accessible.	**Enforcement** **Engineering**
Goal 5	Help reduce traffic congestion and vehicle emissions around schools, contributing to cleaner air and a healthier environment.	**Enforcement** **Engineering**

Table 2: Goals of the SRTS program

2 Part A
Reimagining Active School Transit Experiences (RASTE)

2.1 About RASTE

The Reimagining Active School Transit Experiences (RASTE) program aims **"to empower schools with the tools and knowledge to promote active mobility among students, revitalising cycling and walking to school for safer, healthier communities."**

This is achieved through three essential elements:

Education

Encouragement

Enforcement

The program's goal is to catalyse behavioural change among students, parents, teachers, and stakeholders, fostering a culture of responsibility, awareness, and active mobility. RASTE also seeks to help schools reclaim their role as agents of change, imparting invaluable lessons in road safety, instilling a sense of civic responsibility, and cultivating a generation of conscientious citizens. Given that urban mobility challenges across India are similar, the principles and practices espoused by RASTE offer a blueprint that schools nationwide can emulate and adapt to their local contexts.

2.2 Why should schools adopt the RASTE Program?

- **Vulnerable Age Group:** Young children are often smaller and less visible to drivers, making them more susceptible to traffic accidents. Their understanding of road safety may be limited, which increases their risk when navigating busy streets.
- **Building Lifelong Habits:** Teaching road safety and the importance of sustainable mobility early helps instil responsible behaviour that will last a lifetime. By learning essential rules and developing good habits, children become more confident and capable as pedestrians, cyclists, and eventually drivers. These early lessons create a strong foundation for their future interactions with traffic.
- **Peace of Mind for Parents and Staff:** Knowing that children understand how to move safely around traffic contributes to a safer school environment and alleviates concerns about their well-being during travel.

2.3 Activities under RASTE

This guidebook includes 35 activities grouped under **Education, Encouragement and Enforcement**. Based on the goals set earlier in section 1.4/D, a school can select appropriate activities for designing their RASTE program.

A. Education activities

Education activities are closely linked with encouragement and precede in terms of sequence of engagement in order to reduce risk to injury. They cater not just to students but also include engaging with the neighbourhood. The 23 educational activities are categorised into 5 groups based on different modes and outcomes that can be selected based on a school individual context.

Some sub-groups may require special attention, such as families who do not speak English as a first language, individuals with vision, hearing or mobility impairments, and families with low incomes. These groups are often overlooked. Therefore, it is imperative to create an outreach and engagement strategy alongside the educational activities.

S No	Category	Indicative Activities	Outcomes linked to SRTS
i	**Awareness building**	SRTS Workshop Road Safety Workshop Awareness and Educational Videos Neighbourhood Awareness Campaigns	• Exposure to the program • Understanding one's own travel behaviour patterns and impact
ii	**Art and creative learning**	Drawing and Colouring Poster Making Making Using Street Signs Create a Superhero	• Familiarising students and ensuring retention of vocabulary and key concepts related to SRTS through interactive learning
iii	**Individual and group games**	Word Search and Crossword Essay Writing Quiz Debate Role-play Road Sign Card Games Treasure Hunt	
iv	**Skilling and training**	Golden Hour First Response Road Safety Drills Cycle School	• Teaching self reliance and equipping children with the skills required for their safety
v	**Interactive workshops and events**	Road safety vlogs Emission Footprint Mapping Low Pollution Maps Design a Safe Street Road Safety Symposium	• Self-learning hands-on activities for a deeper understanding of impacts and solutions

Table 3: Education activities under RASTE

Awareness building

Awareness Building activities focus on a basic introduction to the SRTS and its benefits through key technical concepts within road safety, understanding sustainable transportation, and reducing air pollution through better transportation choices. It is targeted towards all relevant stakeholders and can be anchored by subject matter expert(s) to ensure a solid foundation on the topic.

Suggestive activities:

Activity	Target audience	Anchored by
SRTS Workshop	Students (1st-12th Std.), Parents/ Guardians, Teachers	Expert(s)
Road safety workshop for private and shared transport drivers	Parents/Guardians, Private Van/Auto/Bus Drivers	Expert(s)
Awareness and educational videos	Students (1st-12th std.)	Teacher(s)
Neighbourhood awareness campaign	Neighbourhood/General public	Teacher(s),

Image 11: Road Safety Week. Source: Kennedy High The Global School

Image 12: Traffic awareness rally at Chennai. Source: The News Minute

ii Art and creative learning

Art and creative learning activities serve as powerful tools for self-expression and for others to understand the children's perspectives and perceptions of aspects such as their daily school commutes, their sense of safety, and even their ideas for change.

Suggestive activities:

Activity	Target audience	Anchored by
Drawing and colouring activities	Students (Nursery - 4th std.)	Teacher(s)
Create your Superhero	Students (Nursery - 4th std.)	Teacher(s)
Poster making	Students (5th-12th std.)	Teacher(s)
Making and using street signs	Students (5th-12th std.)	Teacher(s)

Image 13: Safety sarathy. Source: letstagon.com

Image 14: Road safety at St. Claret School. Source: claretschooltoday.com

iii Individual and group games

Children learn best through play. Individual and group games can be conducted as standalone activities on topics like road safety, walking, and cycling, or they can be woven into existing school's routine activities, such as debates and quizzes, as thematic elements.

Suggestive activities:

Activity	Target audience	Anchored by
Word search and crossword	Students (1st-7th std.)	Teacher(s)
Theme or Scenario-based essay writing	Students (5th-12th std.)	Teacher(s)
Quiz	Students (5th-12th std.)	Teacher(s)
Debate	Students (8th-12th std.)	Teacher(s)
Role-play	Students (1st-12th std.)	Teacher(s)
Road sign card games	Students (1st-12th std.)	Teacher(s)
Treasure Hunt	Students (1st-7th std.)	Teacher(s)

Image 15: Source: Iot.dhl.com

Image 16: Quiz Competition. Source: Hindustan Schools

iv Skilling and training

Skilling and Training activities target capacity building of students in safe walking, cycling and emergency response skills during these activities, anchored by subject matter expert(s). Through these interactive activities, students will gain confidence, learn self-reliance, and the ability to respond calmly and competently in crises.

Suggestive activities:

Activity	Target audience	Anchored by
Road Safety Drills	Students (1st-12th std.)	Expert(s)
Golden hour - first response training	Students (5th-12th std.)	Expert(s)
Cycle School	Students (5th-12th std.)	Expert(s)

Image 17: Source: xinhuanet.com

Image 18: Bicycle training program. Source: DULT

V Interactive workshops & events

Interactive workshops offer a mix of learning concepts where students of all ages/class groups can delve into aggregating challenges, and co-creating solutions, through a more hands-on experiential learning process. Some of these activities can help students learn about different perspectives about decision making while designing for road safety. A few of these activities can help students understand air pollution and look for better solutions. The other activities enable their creative thinking through designing their ideal street. In addition, a year-end showcase of SRTS student projects can provide a platform for students to present their work and receive feedback.

Suggestive activities:

Activity	Target audience	Anchored by
Emission footprint mapping	Students (5th-12th std.)	Teacher(s)
Low pollution routes	Students (5th-12th std.)	Teacher(s)
Design your safe street	Students (5th-12th std.)	Teacher(s)
Road safety vlogs	Students (5th-12th std.)	Teacher(s)
Road Safety Symposium	Students (5th-12th std.)	Teacher(s)

Image 19: Source: roadsafety.fia-grants.com

Image 20: Emission footprint mapping. Source: Sensing Local

B. Encouragement activities

Encouragement strategies are about generating excitement and interest in walking and bicycling. Special events, contests and ongoing activities provide ways for parents and children to discover, or re-discover, that walking and bicycling are doable and fun.

Encouragement activities also play an essential role in moving the overall SRTS program forward because they build interest and enthusiasm, which can buy support for changes that might require more time and resources, such as constructing a new footpath or cycle lanes.

In brief, encouragement activities can be:

- Quick and easy to start.
- Executed with little funding.
- Organised by parents, students, teachers or community volunteers.
- Involve all children, including children with disabilities.
- Offer teachable moments to reinforce safe walking and bicycling behaviours.

S No	Category	Indicative Activities	Outcomes linked to SRTS
1	**Behaviour Change**	Walk to School Cycle to School	• More children walking and bicycling to and from schools • Encouragement of healthy and active lifestyles
2	**Competitions and incentives**	Design your bicycle helmet Active mobility leader board Road Safety Pledge SRTS appreciation day	

Table 4: Encouragement activities under RASTE

Behaviour Change

The goal of behaviour change related activities is to nudge small independent or collective actions to influence current perceptions and habits.

Suggestive activities:

Activity	Target audience	Anchored by
Walk to School	Students (5th-12th std.)	Teacher(s)
Cycle to School	Students (5th-12th std.)	Teacher(s)

Image 21: Source: stockpicturesforeveryone.com

ii Competitions and Incentives

The activities here aim to encourage students, parents, and private vehicle users by recognising their efforts in choosing sustainable commuting options and safe cycling and driving practices through incentives.

Suggestive activities:

Activity	Target audience	Anchored by
Design your bicycle helmet	Students (1st-7th std.)	Teacher(s)
Active mobility leader board	Students (5th-12th std.)	Teacher(s)
Road safety pledge	Students (All)	Teacher(s)
SRTS appreciation day	Parents/Guardians, Private Van/ Auto/Bus Drivers	Teacher(s)

Image 22: Source: Muskaan Foundation for Road Safety

Image 23: Source: ahlconpublicschool.com

C. Enforcement activities

The main goal of Safe Routes to School (SRTS) enforcement strategies is to deter unsafe behaviours by drivers, pedestrians, and bicyclists and to encourage all road users to obey traffic laws and share the road safely. Enforcement is one of the complementary strategies that SRTS programs use to enable more children to safely walk and bicycle to school. However, enforcement used alone will not have a long-term effect.

Schools must utilise a combination of enforcement and engineering to address the specific needs of their schools and achieve long-term results. Enforcement activities includes students, parents, crossing guards, school personnel, and neighbourhood watch programs, all of which work in conjunction with the municipal and law enforcement agencies.

S No	Category	Indicative Activities	Outcomes linked to SRTS
1	**Student and Parent Groups**	Student Safety Patrol Crossing Guard Program	Increased bicycle, pedestrian and traffic safety Decreased traffic congestion
2	**Audits and Checks**	Road Safety Audits Footpath Safety Audits Helmet Checks School Clean-up Drives	

Table 5: Enforcement activities under RASTE

Student and Parent Groups

The following activities are aimed at increasing road safety. Schools can establish internal and external patrol teams working together to manage traffic during school peak hours. The teams can be supported by minor infrastructure improvements outside the schools, like designated pick-up/drop-off zones, pedestrian crossings, and traffic calming measures.

Activity	Target audience	Anchored by
Student Safety Patrol	Students (8th-12th std.)	Teacher(s)
Crossing Guard Program	Teachers, Parents/Guardians	Teacher(s)

Image 24: Awareness of Traffic Rules for School Source: transport.gov.lk

ii Audits and Checks

The Audit and Checks activities are crucial to identifying hazards and recommendations for solutions from the children's point of view. These activities are also helpful in raising awareness amongst students and foster a stronger sense of community responsibility.

Activity	Target audience	Anchored by
Footpath safety audit	Students (5th-12th std.)	Teacher(s)
Road safety audit	Students (5th-12th std.)	Teacher(s)
Safety gear checks	Students (1st-12th std.)	Teacher(s)
School zone clean-up drives	Students (5th-12th std.)	Teacher(s)

Image 25: Source: Timesofindia.indiatimes.com

2.4 Implementing RASTE

A **Creating an activity calendar**

B **Supporting and tracking the program**

C **Evaluating the impact of the program**

A. Creating an activity calendar

i Selecting activities as per the goals

Based on the goals selected in your plan (see 1.4/D), identify the 3 Es (Education, Encouragement and Enforcement). Based on this, the core team can populated a long list of the potential activities to implement. This list, along with the school's annual calendar will form the basis for the mapping of activities to create the Activity Calendar (Annexure IV: Activity Calendar).

ii Mapping Activities

Once the list of activities is finalized, the core team's next task is to map these activities to the school's annual calendar. This responsibility involves considering which activities can be integrated within the curriculum, and which ones need to be extracurricular activities and implemented at special events. The team's role in this process is key to the successful implementation of the activities.

iii Incorporating the program into the academic calendar

The team will review the selected activities along with the school management and finalise a comprehensive calendar using the provided template. This calendar will formally incorporate the school's annual activities alongside the SRTS initiatives, facilitating efficient planning and execution. To streamline the process, smaller teams within the core group will be formed to organise and support specific activities.

Image 26: Students incorporating their RASTE program within their calendar

B. Supporting and tracking the program

Once the plan is created, implementation must be closely tracked across various activities. It is vital for the Core Team to consider how to sustain energy and interest in the program so that children continue to walk and bicycle to school safely. Key strategies for keeping the program going include:

- **Identifying additional program champions:** Install a leader board as a school to track local champions who walk / cycle to school. Additionally, they can be awarded for their efforts to sustain their action.
- **Letting people know about the successes:** Get visibility for activities through local media and school communications and publicise the activities. Making the work fun and positive makes it more likely that people will want to continue and others will want to become involved.
- **Encouraging policy changes:** These might be school, neighbourhood or local government policies that support children walking and bicycling to school. For example, local departments may promote new school construction within walking and bicycling distance of residential areas. Traffic police may provide and support Student Safety Patrols or the Crossing Guard Programs.
- **Creating a permanent committee:** A permanent committee within the PTA means that SRTS will continue to receive attention and energy.
- An SRTS program has the potential to improve walking and bicycling conditions near a school and spread interest into other parts of the community. Core teams that persist in their efforts and make measurable improvements based on their evaluation will be rewarded with safer places for children to walk and bicycle and more children choosing safe routes to school.

C. Evaluating the impact of the program

After the program begins, careful monitoring will help identify the activities that are increasing the number of children safely walking and bicycling to school. Setting reasonable expectations about what the program can do will help build its impact narrative. By knowing the starting point, RASTE programs can set specific and reasonable objectives. Some of the key reasons to evaluate the program are:

- **Making sure that the underlying problem is identified** so that proper strategies to address the problem are picked. This can be done through conducting the baseline surveys that are detailed out in 1.4/C

- **Identifying changes that will improve the program.** Part of evaluation is monitoring what happens throughout the life of a project so that mid-course corrections can be made, if needed, to improve chances of success.
- **Determining if the program is having the desired results.** This is a primary purpose of any evaluation and can be used to inform funding sources, the media, and the public to help build support for SRTS.

Some key methods to track impact linked to each of the activity categories and outcomes are listed below.

Category	Outcomes linked to SRTS	Evaluation methods
EDUCATION ACTIVITIES		
Awareness building **Art and creative learning** **Individual and group games**	Exposure to the program Understanding one's own impact and behaviour patterns Familiarising students and ensuring retention of vocabulary and key concepts related to SRTS through interactive learning	Develop a post session evaluation form to understand how many students have understood the concepts Track the number of exposures the students have had to these concepts Based on the outcomes such as better learning/understanding, you can tailor to implement more of a certain type of activity over others
Skilling and training	Self reliance and equipping children with the skills required for their safety	Evaluate how confident children are to walk and cycle on the streets within the schools neighbourhood
Interactive workshops and events	Self-learning hands-on activities for a deeper understanding of impacts and solutions	Increased participation of students in these activities indicates their high interest levels and potential change of behaviours

ENCOURAGEMENT ACTIVITIES		
Behaviour Change	More children walking and bicycling to and from schools	Increase in the number of children walking and/or cycling to school
Competitions and incentives	Encouragement of healthy and active lifestyles	
ENFORCEMENT ACTIVITIES		
Student and Parent Groups	Increased bicycle, pedestrian and traffic safety	Conduct perception surveys to understand how safe students feel walking and cycling within the school vicinity
Audits and Checks	Decreased traffic congestion	Positive government response to support and improve the conditions around the school
		Measure congestion, air pollution, etc. using sensors and other equipment

Table 6: Evaluation methods and outcomes of the RASTE Program

3 Part B
Safer School Zone (SSZ)

3.1 About Safer School Zone

The Safer School Zone (SSZ) program targets re-designing pedestrian infrastructure and traffic management **to create safe environments for children to commute to and from school by improving road safety, minimising pedestrian vehicular conflict and enforcing speed limits.**

The program is developed in alignment with the standards prescribed in Draft IRC:SP:32 - Guidelines for Safer Commute to Schools and other related IRC codes.

Three zones around a school together define a SSZ. The first is the School Access zone (SAZ), a 100m road segment on either side of all school gates. It is the focal point of maximum interventions and the highest level of enforcement. Second is the School Proximity zone (SPZ), which is 150m - 500m around the school. Here speed limits are expected to be curbed below between 20 - 30 km/hr. Lastly is the Transition Zone (TZ) that is situated on the periphery of the Proximity zone, marked as an area where traffic is meant to slow down to the required speed limit in the SPZ.

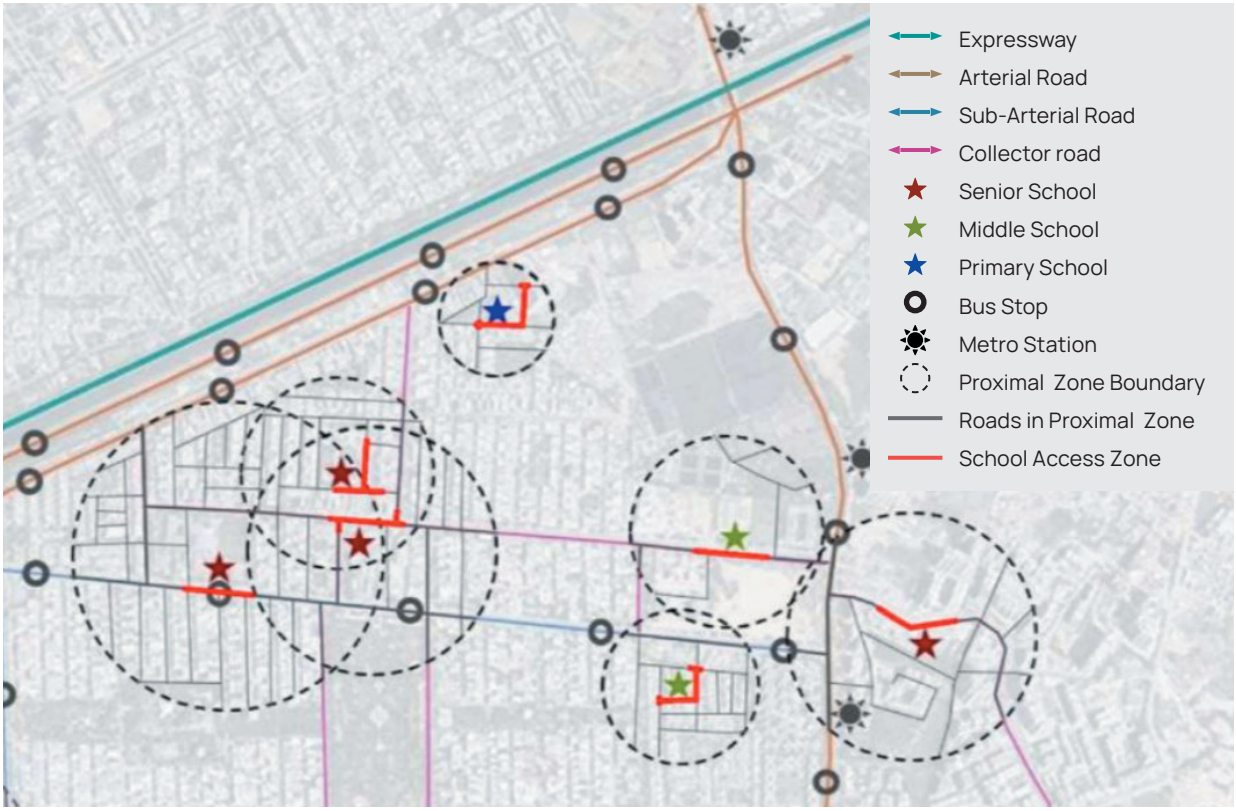


Figure 1: Demarcation of Safer School Zone, Source: IRC:SP:32 (draft)

3.2 Objectives of the Safer School Zone Program

1.

Streamlining safer movement for children by minimising pedestrian-vehicular conflict.

2.

Enabling safe alighting and boarding of children through demarcating designated drop-off and pick-up zones near schools.

3.

Ensuring obstruction and encroachment-free footpaths and lines of sight to increase the visibility of children to motorists.

4.

Communication of presence of school zones and its restrictions.

5.

Traffic calming measures to actively reduce speed.

3.3 Overview of interventions

The IRC:SP:32 suggests 23 interventions across junctions and road segments. Given the interventions in the SSZ are most effective when they are planned as a system complementing each other, they are also grouped into 10 clusters. The implementation of each cluster plays a role in fulfilling each of the 5 objectives mentioned above. This section gives more detail on each of these interventions and the objectives they fulfill.

An easy guide of interventions and their standards in reference to the respective IRC codes is provided in Annexure V.

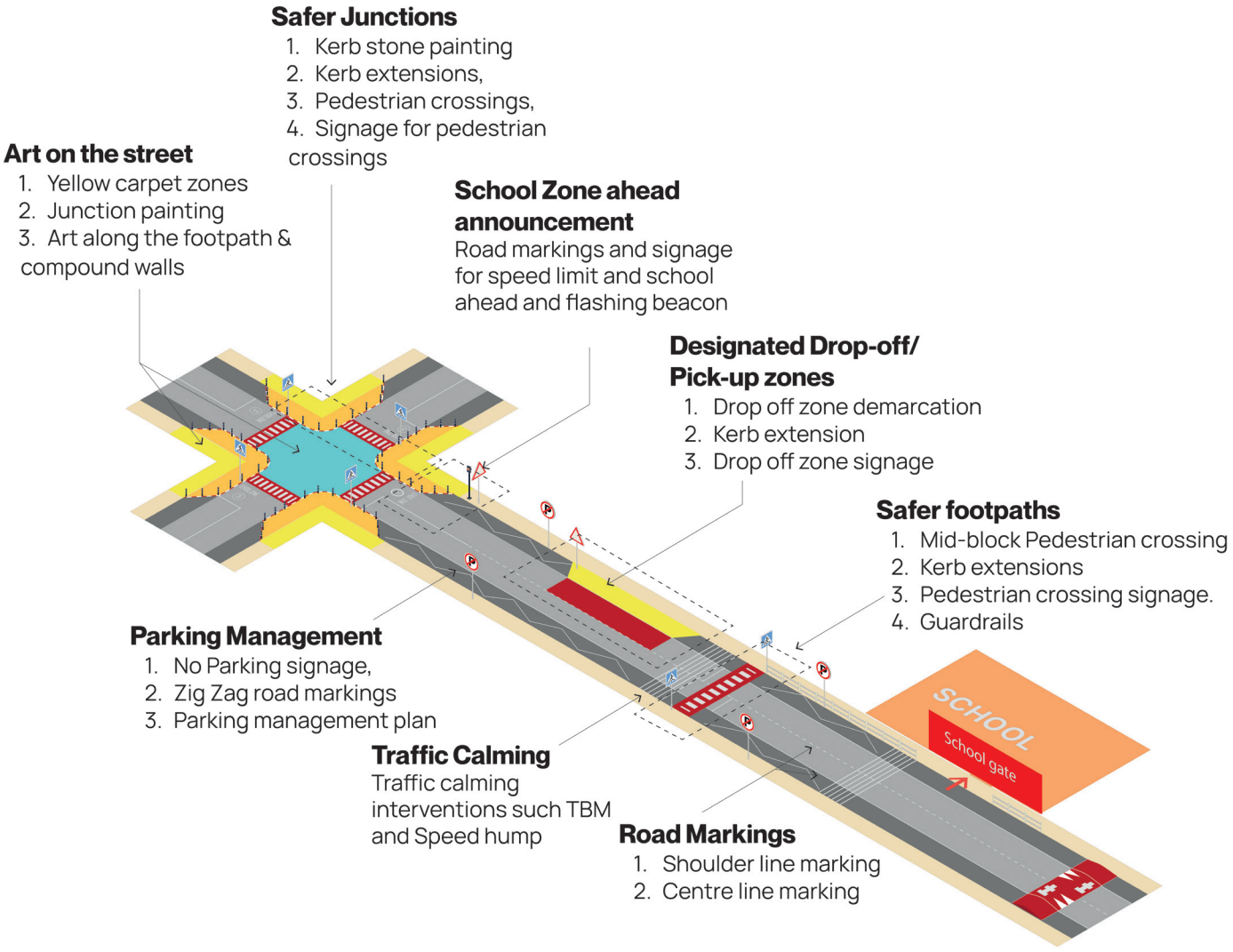


Figure 2: Interventions within SSZ

A. Streamlining safer movement for children by minimising pedestrian-vehicular conflict

Safer Junctions & Safer Footpaths

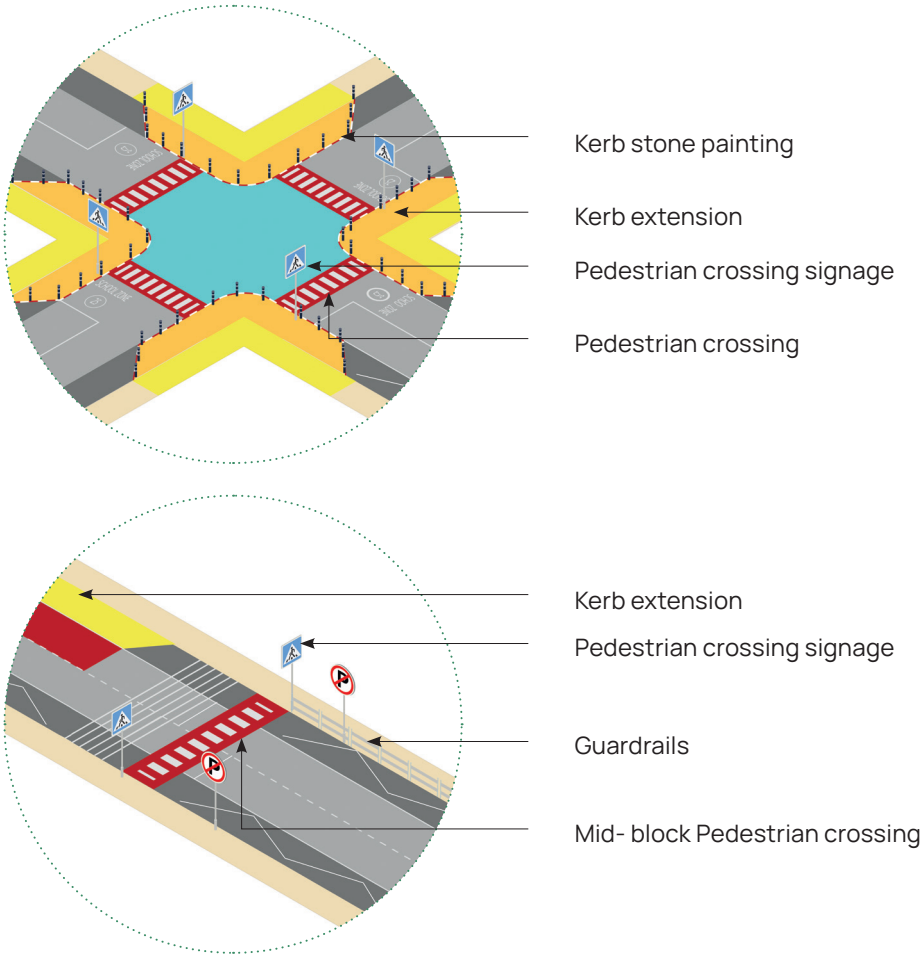


Figure 3,4: Interventions at safer junctions (top), Interventions at safer footpaths (bottom)

1. Guardrails on footpaths leading to the school gate

- **Purpose:** Guard rails are needed to avoid spillover of school children walking to the school onto the carriageway and protect them from traffic accidents. This is implemented near school gates as the pedestrian traffic at these junctures are high.
- **Specifications:** Guardrails should be of 700 - 1000mm height and erected from the nearest pedestrian crossing to the school gate ~ 20 - 50m. *Ref: Section 5.4.2, IRC:SP:32.*

2. Pedestrian crossings with kerb extensions on intersections and mid blocks

- **Purpose:** Kerb extensions allow for higher congregation of pedestrians before crossing, they also create visibility of oncoming traffic.
- **Specifications:** Minimum width of the pedestrian crossing should be 3m. *Ref: Section 6.7, IRC:103.* The pedestrian crossing should be painted in red and white, where red

replaces the grey portions of the typical crossing. *Ref: Section 5.4.3, IRC:SP:32.*
Midblock crossing to be placed at 20m from the school gate. *Ref: Section 5.4.3, IRC:SP:32.*
All midblock crossings and intersections should have kerb extensions with kerb ramps that create access and visibility to the pedestrian crossings. *Ref: Section 6.2.3,6.7.2, IRC:103.*

3. Signage for pedestrian crossing

- **Specifications:** The sign should be erected on both approaches to an uncontrolled pedestrian crossing. *Ref: Section 15.27, IRC:67*

4. Maintaining clear footpaths on streets

- **Specifications:** All footpaths must have a clearance of 1.8m in width and 2.2m in height clear of obstructions both horizontally and vertically. *Ref: Section 6.1.3, IRC:103*

5. Refuge islands wherever applicable to enable safer crossings

- **Purpose:** Refuge islands allow for pedestrians to pause while crossing roads, in the case of children, the speed of walking may vary from that of an adult causing a need for pause points along the crossing.
- **Specifications:** Standalone refuge islands to be provided on roads with ROW less than 12 m, with minimum width of refuge island being 1.2m. *Ref: Section 5.4.4, IRC:SP:32.*

Road Markings

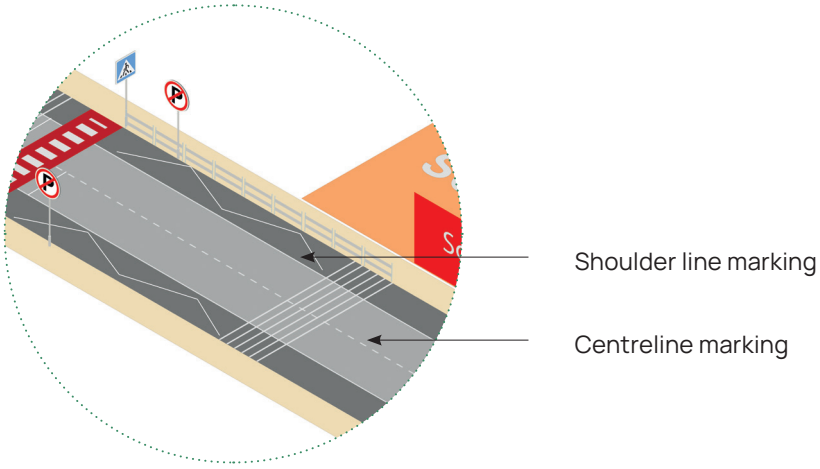


Figure 5: Road markings within the SSZ

6. Centreline & Shoulder line marking

- **Specifications:** Centreline on each 2 way street above 7m carriageway will have LM02 specification of centreline marking and LM24 at the road edge,
At intersections LM24 will be executed to delineate no overtaking *Ref: Table 4.3, IRC:35*

B. Enabling safe alighting and boarding of children through demarcation of designated drop-off and pick zones near schools

Drop-off/ Pick-up Zone

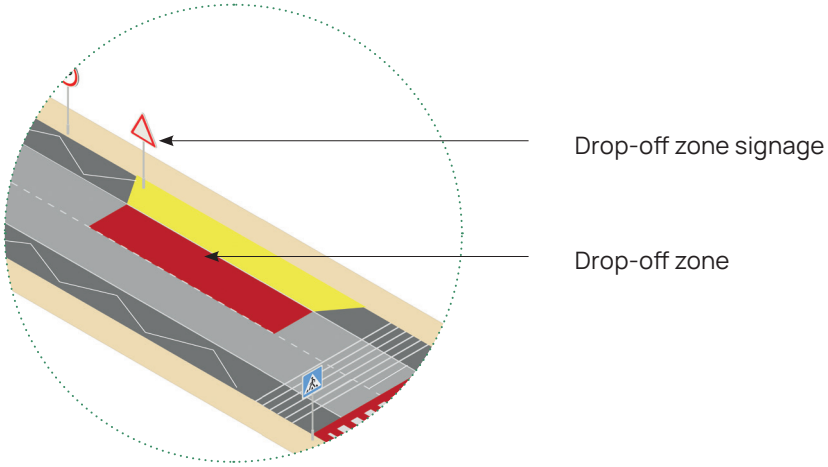


Figure 6: Interventions at the Drop-off / Pick-up zone

7. Drop-off zone demarcation

- **Purpose:** Drop-off zones clearly demarcate the halting and parking areas within the SAZ to allow for organised pick-up and drop-off.
- **Specifications:** Bus drop-off zones need to be 4m wide and be designed as one ways in clockwise direction. Private vehicle drop-off zones can be 2 - 4ECS in length, with 4 being the longest. A clear of 2m is required on the footpath adjacent to drop-off zones. *Ref: Section 5.3.2, IRC:SP:32*

8. Signage for drop-off zone

- **Specifications:** To be provided at every drop-off zone. *Ref: Section 5.3.2, IRC:SP:32*

9. Traffic Management Plan

- **Purpose:** A traffic management plan ensures a seamless flow of traffic devoid of blockages and accidents. This can be done through creation of one-ways or traffic blocking.

Parking Management

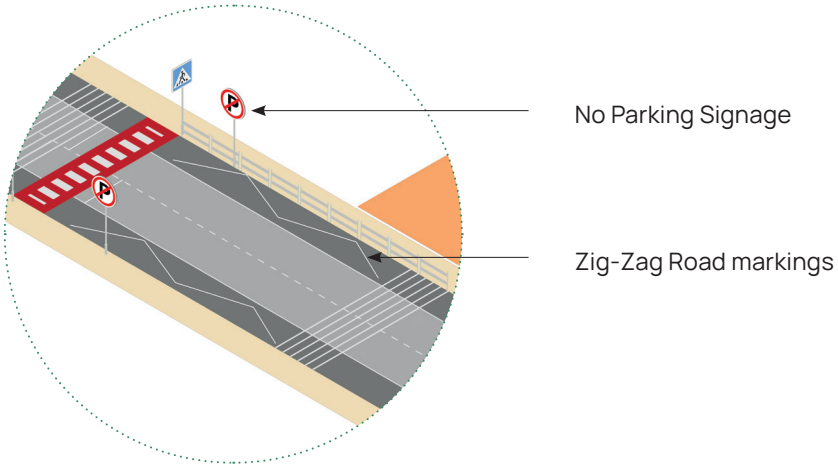


Figure 7: Parking management within the SSZ

10. Parking Enforcement

- **Purpose:** Parking enforcement along the SAZ helps in ensuring there are no vehicles parked within the SAZ reducing congestion.

11.No Parking Signage

- **Specifications:** To be provided along the SAZ and at intersections to enforce no parking. *Ref: Section 5.10, IRC:SP:32, Section 14.8.5, IRC:67*

12. Zig-Zag Road marking

- **Specification:** Transition zones to have zig zag markings to alert motorist of pedestrian crossing to slow down. This also needs to be present at no halting and no parking zones to alert motorists. *Ref: Section 5.10, IRC:SP:32,*

C. Communication of presence of school zones and its restrictions

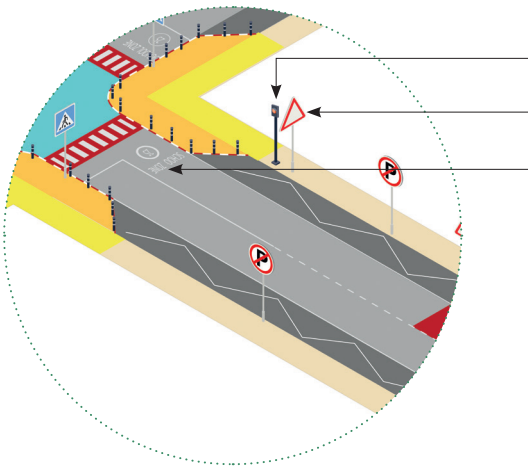


Figure 8: School zone ahead and speed limit announcement within the SSZ

School Zone ahead announcement

13. School zone ahead signage

- **Specification:** To be located at the edge of the TZ, threshold of TZ with SPZ, threshold of SPZ and SAZ. The signage should also mention distance to School. *Ref: Section 5.8, IRC:SP:32*

14. School zone ahead road marking

- **Specifications:** To be painted at the SAZ in an elongated manner. *Ref: Section 5.87, IRC:SP:32* , *Table C1, IRC:35*

15. Beacons

- **Purpose:** Beacons call for attention to signage in junctions and road segments where there is excessive traffic and visual noise.
- **Specifications:** Flashing yellow beacons to be provided wherever school signage will not be noticeable due to traffic. It is to be located at entry of SAZ and at every midblock pedestrian crossing in SPZ. *Ref: Section 5.9, IRC:SP:32*

Regulation of speed limits

16. Speed limit signage

- **Specification:** To be located at the edge of the TZ, threshold of TZ with SPZ, threshold of SPZ and SAZ. The signage should also mention distance to School and speed limit within the SAZ. If speed limits are time specific, then signboards should have supplementary signboard mentioning timings and corresponding speeds. *Ref: Section 5.8, IRC:SP:32*

17. Speed limit road marking

- **Specifications:** To be painted at the SAZ in an elongated manner. *Ref: Section 5.87, IRC:SP:32 Ref: Table C1, IRC:35*

Art on the street

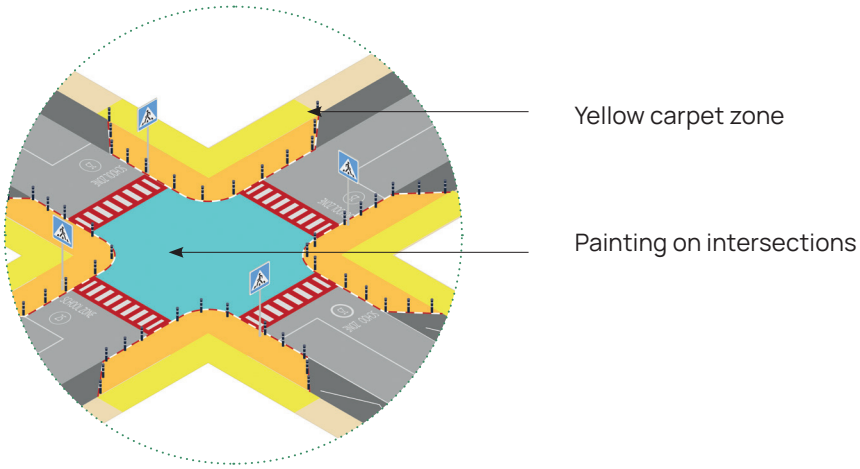


Figure 9: Art on the street within the SSZ

18. Yellow carpet zones

- **Purpose:** Yellow carpet zones create more visibility to pedestrians and also create the 'nudge effect' encouraging children to stay within the zone. Hence, regions near junctions and schools need to be identified and painted in proportion with the size of the congregation. *Ref: Section 6, IRC:SP:32*

19. Painting on intersections

- **Purpose:** Painting the centre of junctions with vibrant murals creates identifying elements around SSZ for quick recognition.

20. Art along the compound walls of the school

- **Purpose:** Compound walls along schools in the SAZ can be painted to create visibility and call attention to the school zone. *Ref: Section 5.13, IRC:SP:32*

21. Table top crossing painting

- **Purpose:** Table top crossings in SAZ can be painted with colourful patterns to make it more vibrant and encourage usage by children. *Ref: Section 5.7, IRC:SP:32*

D. Ensuring obstruction and encroachment free footpaths and sight lines to increase visibility of children to motorists

Enforcement considerations

- Removal of any obstructions at intersections that can block visibility of children.
- All parking to be discouraged within SAZ, particularly on roads adjacent to schools, during school hours. If present, it must be parallel parking and not perpendicular/ angular parking.
- Parallel parking lane can be a maximum of 2m, same width to be used for 2 wheeler and bicycle parking.
- No double lane parking within the school zone, this includes SAZ, SPZ, TZ.
- Supplementary boards for parking signage need to be present for displaying any time specific parking restrictions.
- All road side vendors within the SAZ to be relocated to at least 50 m away from the school entrance gates.
- Consecutive vending zone to be spaced 50m apart in SAZ and 30m apart in SPZ.
- Vending zone can only be provided within 2m of ROW without encroaching on footpath.
- *Ref: Section 5.10, 5.11, IRC:SP:32*

E. Traffic calming measure to actively reduce speed

Traffic calming measures

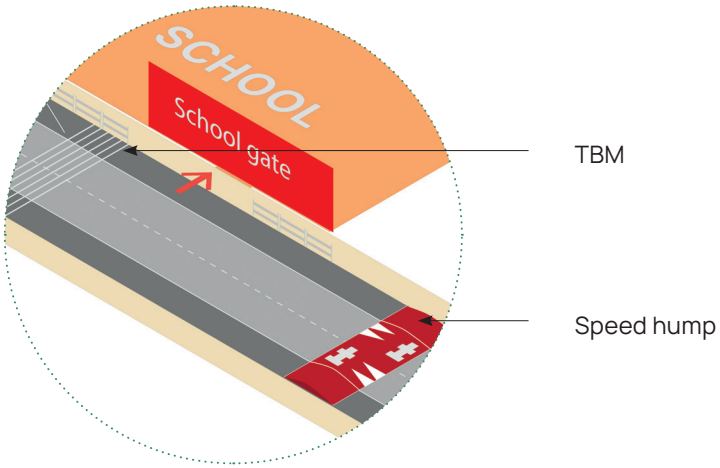


Figure 10: Traffic calming interventions within the SSZ

22. Transverse Bar Markings (TBM)

- **Purpose:** TBM is a gentler method for traffic calming providing minor physical and visual cues for vehicles to slow down.
- **Specifications:** One set of bar marking (TM 08) comprises 6 bars of 300 mm wide and 15mm high to be applied across the full width of the carriageway. *Ref: Section 2.3.3.4, IRC:99*

23. Speed humps

- **Specifications:** Speed breakers are to be painted in red and white in chequer block pattern with BM05 road marking. The same treatment to be followed for sloped sections of table top crossings in school zones *Ref: Section 5.7, IRC:SP:32, Fig 3.1, IRC:99*

3.4 Implementing SSZ

A **Mapping a safer school zone**

B **Conducting street and junction surveys**

C **Selection and detailing of interventions**

D **Creating a traffic management plan**

E **Consensus building for action**

F **Creating detailed drawings**

G **Evaluating the SSZ Program**

A. Mapping a safer school zone

School Access Zone (SAZ)

A school access zone is 100m of road segment on both sides of all entry gates of a school. If there is an intersection 100m from either side of the entry gates of the school, the SAZ will extend to 30m beyond the intersection. Further, for schools below the primary level (nurseries), the shortest route from the nearest transit point to school entry will be considered part of the SAZ. The SAZ can be of two typologies depending on the school's location within its urban block.

As per IRC 99, the SAZ speed limit has to be curbed to 25 Kmph. The Draft IRC:SP: 32 provides further nuance about speed limit restrictions based on road hierarchy.

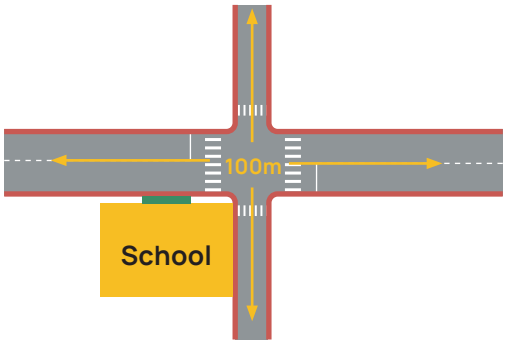


Figure 11: Corner block school entry

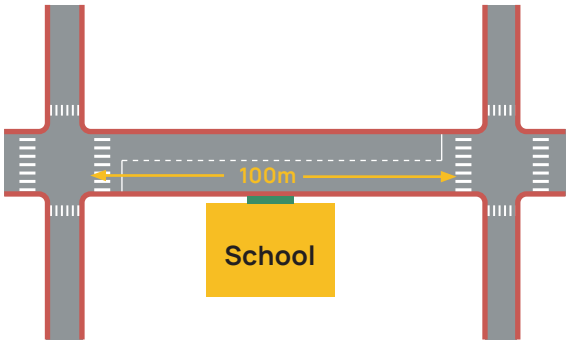


Figure 12: Mid-block school entry

Corner Block School entry

The corner block school typology typically contains one/all of the school gates at the corner of an urban block, ~20m from an intersection. The SAZ of such schools is 100m of roads on all sides of the intersection.

Mid-block school entry

In a mid-block school typology, the school exists in the middle of the block, thus making the road along the school gate the SAZ, demarcated 100m on each side of the gate.

School Proximal Zone (SPZ)

The proximal zone is demarcated as the area of 150 - 500 m radius around the school gate determined by the road hierarchy and the grade level of students in the school as detailed in IRC:SP: 32. The School Proximal Zone (SPZ) is the region where most of the students congregate

The speed limit in the SPZ has to be regulated between 20 - 30 Kmph depending on the road hierarchy, varying between a local road to an arterial road.

Transition Zone (TZ)

The transition zone is the predefined road length leading to the SPZ. All roads within the SPZ will have a transition zone. Transition zones are crucial to allow vehicles to reduce their speeds as they approach the proximal and school access zones.

The length of the transition zone of each road depends on the road hierarchy and existing speed limit, varying between 20 -70m between the local road and arterial road. This is further detailed in IRC:SP:32.

Locating interventions within the SSZ

The table below also showcases where the intervention clusters are expected to be situated across the three zones - School Access Zone(SAZ), School Proximal Zone (SPZ) and Transition Zone (TZ).

		Intervention Clusters	SAZ	SPZ	TZ
Pedestrian interventions		Safer junctions	✓	✓	
		Safer footpaths	✓	✓	
Vehicular interventions		Road Markings	✓	✓	✓
		Designated Drop-off/ Pick-up zones	✓		
		Parking Management	✓	✓	
		School Zone ahead announcement	✓		
		Regulation of speed limits	✓	✓	✓
		Art on the street	✓		
		Enforcement considerations	✓	✓	
		Traffic Calming	✓	✓	✓

Table 7: Locating interventions within the SSZ

B. Conducting street and junction surveys

Before planning a Safer School Zone, there is a need to conduct 2 detailed field audits - at junctions, and the SAZ, to document existing infrastructure, encroachments and obstructions for pedestrians and vehicles, and to measure road and footpath widths. Students above 9th grade may participate in this exercise as well.

The following sections detail out the parameters that need to be measured in these two field audits.

Junction Audit

The junction audits need to be conducted across all junctions within the SAZ and SPZ and attributes of all legs of a junction should be recorded individually. Survey forms of the junction audits are given in annexure VI.

S.No	Audit Parameters	Input
1	Does this road lead to the school?	Y/N
2	Are there clearly marked pedestrian crossings on the road?	Y/N
3	Are there pedestrian signals to cross the road?	Yes - 1 side Yes - 2 sides No
4	Are there refuge islands on the roads?	Y/N
5	Select the signage that are present	1. Pedestrian crossing 2. Speed limits 3. School Zone ahead 4. Others if any
6	Are there any obstructions to the line of sight of motorists/ pedestrian before crossing?	Y/N - If yes, Parking, Vending, Junction box, Transformers, Signage, Others
7	Are there any traffic calming interventions at the intersections?	Transverse Bar Markings, Speed Hump, Both, Neither
8	Are there road markings of speed limits and school zones present on the road?	Y/N
9	Condition of Shoulder	Asphalt/ Dirt/ Broken - 1 side/ 2 sides
10	Condition of Footpath	Good/ Needs maintenance/ Broken - 1 side/ 2 sides
11	Width of Shoulder (in m)	
12	Width of Footpath (in m)	

Table 8: Junction audit form

ii School Access Zone Audit

The SAZ audit needs to be conducted on the whole stretch of the SAZ. Survey forms of the junction audits are given in annexure VII.

S.No	Audit Parameters	Input
At the School Gate		
1	What is the SAZ Typology?	Corner block / Midblock School
2	Are there crossing supervisors as part of the school safety patrol team?	Y/N
3	Are there designated pedestrian entry/exit points at the school gate?	Y/N
At the SAZ stretch		
4	Are there drop-off/ pick-up zones?	Designated, Managed, Both, Neither
5	Is parking prevalent on the road?	Y/N
6	Are there traffic blocking measures/ restriction taking place in the SAZ?	Y/N - Description if required
7	Is there a midblock crossing present?	Y/N
8	Are refuge islands present at the crossing?	Y/N
9	Are guard rails present along the footpath?	Y/N
10	Are traffic calming measures present?	Transverse Bar Markings, Speed hump, Both, Neither
11	Select the signage that are present	1. Pedestrian crossing 2. Speed limits 3. School Zone ahead 4. Drop-off/ Pick-up zone 5. Others if any
12	Are flashing beacons present?	Y/N
13	Are road markings present?	School ahead, speed limit, zig zag marking, None of the above
14	Are there encroachments on the footpath?	Y/N - If yes, Parking, Vending, Junction box, Transformers, Signage, Others
15	What is the direction of traffic	One way, Two way

Table 9: SAZ audit form

C. Selection of interventions

Identifying priority interventions through stakeholder consultations

This process entails three engagements with all respective stakeholders.

- **Reflecting on the analysis of baseline surveys to understand existing commuting trends.**
- **Documentation of challenges and ideas for solutions.**
- **Understanding individual priorities for interventions towards creating a plan for safer school zones.**

The success of an SSZ Plan depends on consensus building around solutions and recognising their feasibility on the ground. Hence, this guide proposes a prioritisation framework, evaluating the perceived 'importance' of an intervention and the likely 'feasibility' to execute.

Feasibility refers to the ease of acquiring permissions, presence of community support, or government involvement that may be essential for implementing interventions or enforcing/ maintaining them over time. The idea is that if an intervention is considered important to the stakeholders for implementation, and it also requires high community involvement it becomes a priority intervention, but if this involvement is not feasible, the intervention may need to be de-prioritised.

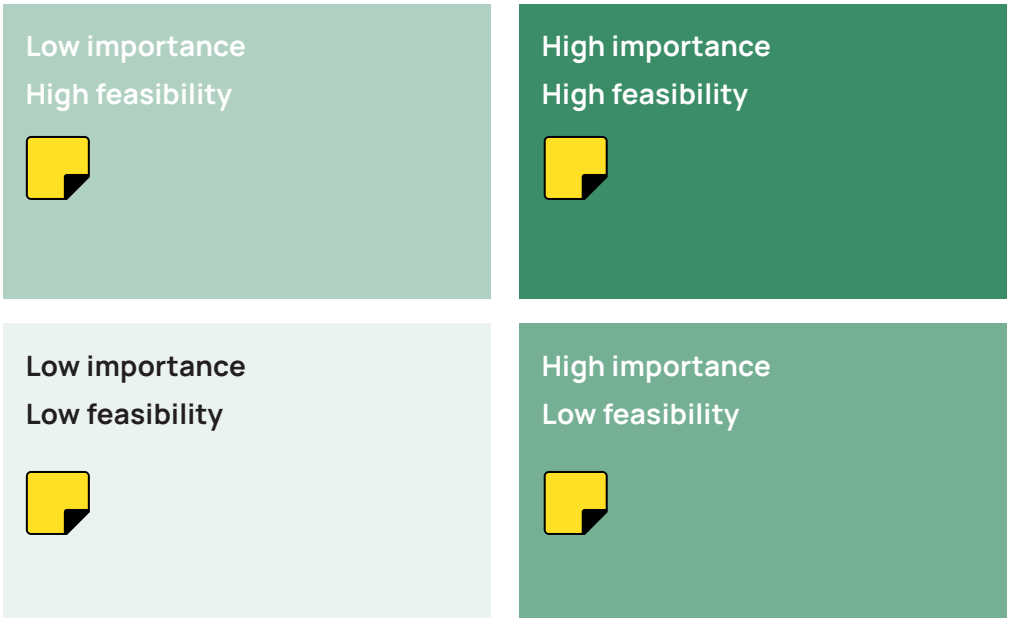


Figure 13: Framework for prioritisation of issues

Planning and developing indicative layout of interventions

Taking into consideration the data from the detailed street and junction surveys, indicative layouts must be prepared for each school to visualise the SSZ plan spread across the three zones, which will further aid consensus building and support vetting on ground.

If this exercise is being undertaken by the core committee, simple hand drawn maps or maps made on Google My Maps can be done as shown in the figure below. This reference was prepared for Vidya Mandir School in Malleswaram, Bengaluru.

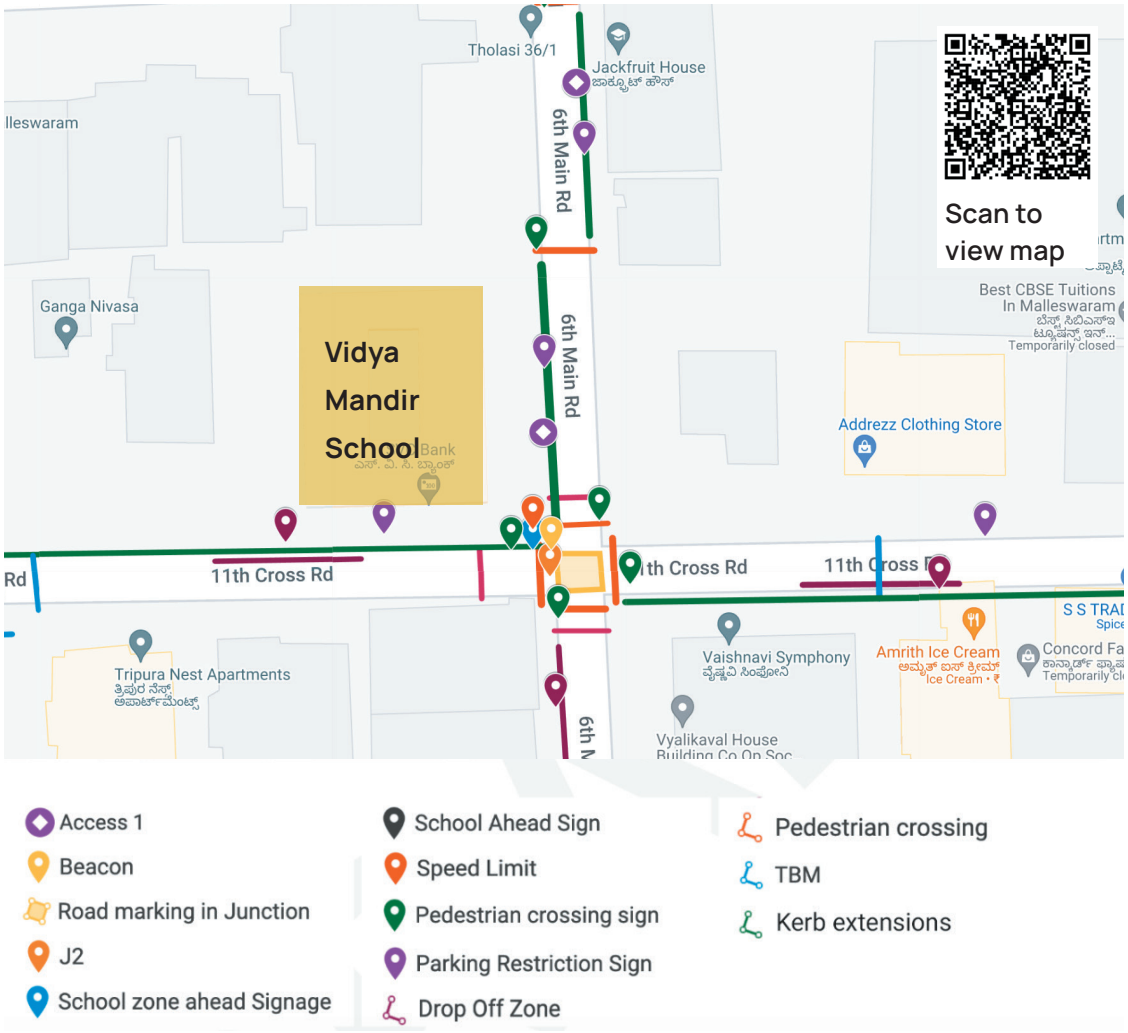


Figure 14: Indicative layout of interventions

On-field vetting of interventions with government officials

The indicative plan needs to be vetted on the ground, checking potential locations of individual interventions against considerations such as - proximity to existing infrastructure, space required on the carriageway, shoulder or footpath, clear lines of sight, and negotiation needed to remove present encroachment and obstructions. This exercise needs to be done with government officials. Once confirmed, the number of individual interventions can be documented in a quantities sheet shown in the following section.

Quantities sheet

Quantities sheet		School 1			School 2		
		J1	J2	D1	J1	J2	D1
A: Safe Junctions							
1	Kerb extensions						
2	Kerb stone painting						
3	Pedestrian crossings						
4	Signage for pedestrian crossing						
B: Streamlining pedestrian flow							
5	Midblock Pedestrian crossing						
6	Kerb extensions adjacent to the crossing						
7	Pedestrian crossing signage.						
8	Guardrails						
C: Designated Drop-off/ Pick-up zones							
9	Drop-off zone demarcation						
10	Kerb extension adjacent to drop-off zone						
11	Drop-off zone signage						
D: Parking Management							
12	No Parking signage						
13	Zig Zag road markings						
14	Parking management plan						
E: School Zone ahead announcement							
15	Road markings for speed limit and school ahead						
16	Signage signalling school ahead and speed limit						

J - Junctions

D - Drop-off Zones

Quantities sheet

Quantities sheet		School 1			School 2		
		J1	J2	D1	J1	J2	D1
F: Traffic Calming							
17	TBM and Speed hump						
G: Road Markings							
18	Shoulder line marking						
19	Centreline marking						
H: Art on the street							
20	Yellow carpet zones - painting on footpaths near intersections and school gates						
21	Painting on intersections to demarcate Safer School Zones						
22	Art along the compound walls of the school						
23	Table top crossing painting						

J - Junctions

D - Drop-off Zones

Table 10: Quantities Sheet

Budget estimation

The quantities must be calculated using the measurements from respective IRC codes mentioned in section 3.3. The rates are bound to vary from city to city and must be derived from the respective city's schedule of rates. For the purpose of implementation, the interventions are grouped as per the type of work that follows the format of a typical bill of quantities:

- **Signage** - Pedestrian crossing, No Parking, Drop-off/Pick-up zone, School zone signage, Speed limit signage
- **Painting including road and walls** - Yellow carpet zone, Intersection painting, Wall painting
- **Road markings** - Pedestrian crossings, Centreline marking, Shoulder line marking, Zig zag marking for no parking, School ahead marking, Speed limit marking
- **Site construction** - Kerb extensions, Refuge islands, Raised pedestrian crossings

Identifying relevant implementation strategy

Due to several limitations, such as budgets, delays in permissions, conflicts on the ground, or lack of consensus about the effectiveness of a solution, it may not be possible to fully implement the SSZ plan all at once. In such a case, several strategies can be applied:

a. **Use of tactical interventions over permanent**

   Tactical interventions will cost less and may last a shorter period. They are suitable to test ideas and evaluate designs to build evidence for permanent interventions.

b. **Using a phase wise approach**

   Considering the six objectives of SSZ (section 3.2), the logic of clusters (section 3.3), and the priorities arrived at through consultations, the SSZ plan may be proposed for implementation over multiple phases. Phasing can be done by geographies such as focussing on SAZ first or targeting some severe issues over others. This strategy will help avoid building incomplete and ineffective systems.

c. **Incorporating SSZ interventions under city wide schemes**

   Another strategy is to identify other infrastructure projects within the city/ neighbourhood under which certain interventions from SSZ can be incorporated. For example, certain junctions and roads stretches under the SAZ can be improved under a metro transit project if they fall within the boundaries of the first-mile and last-mile connectivity of the transit line.

D. Creating a traffic management plan

In addition to the physical infrastructure, there is a need to create a traffic management plan to enforce vehicular behaviours in one-ways or blocking traffic, parking restrictions, drop-off and pick-up zones, etc. The execution of the plan may be done by traffic police, traffic marshals at the schools, and/or by the crossing guard program, which consists of teachers, parents, and school students. The traffic management plan should also include the removal of obstructions and encroachment in the SAZ to avoid traffic jams.

E. Consensus building for action

Typically, the stakeholders in an SSZ are members who are already meant to be a part of the school core committee - which includes school management, students, parents, residents living in the SAZ, local RWAs, local traffic police authorities, and local governing bodies/ elected representatives. It must be noted that the SSZ program can be anchored and led by the school or ULB, but it requires both stakeholders to work in close sync to achieve impact. It is important for the anchor of the program to engage with all the stakeholders and build consensus.

F. Creating detailed drawings

The following is an example of drawings of the SAZ from the proposed SSZ plan for MES Kishore Kendra, 10th main, Malleswaram, Bengaluru.

Junction 1: 10th main X 13th cross

	Proposed interventions	Qty
	Kerb Stone Painting (20m length each, 10m on each side)	4
	Pedestrian crossing	4
	Pedestrian crossing signage	4
	Speed hump painting	2
SCHOOL ZONE 25	School zone + Speed limit road marking	1
	Centreline Marking (130m)	1
	Shoulder line (280m)	1
	Signage (Speed Limit+School Zone Ahead)	1

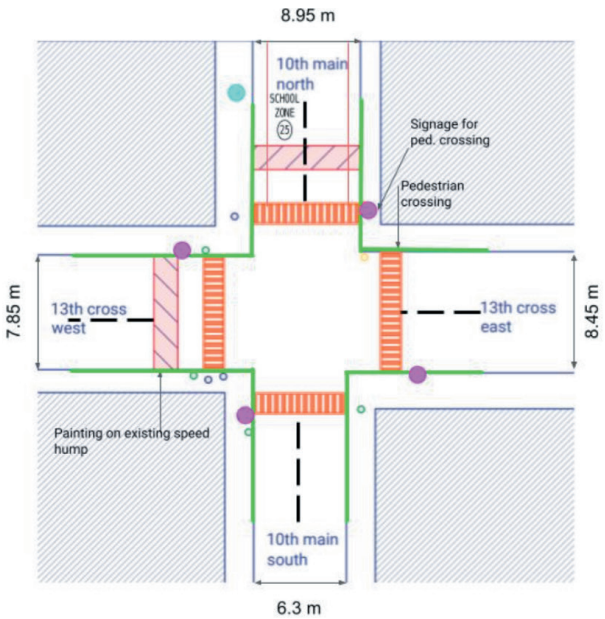


Figure 15: Junction type 1 detailed drawing

Junction 2: 10th main X 15th cross

	Proposed interventions	Qty
	Kerb Stone Painting (20m length each, 10m on each side)	4
	Pedestrian crossing	4
	Pedestrian crossing signage	4
	Speed hump painting	2
SCHOOL ZONE 25	School zone + Speed limit road marking	4
	Centreline Marking (130m)	1
	Shoulder line (280m)	1
	Signage (Speed Limit+School Zone Ahead)	1
	Shoulder Painting	3
	Junction center painting	1
	Yellow carpet zone	1

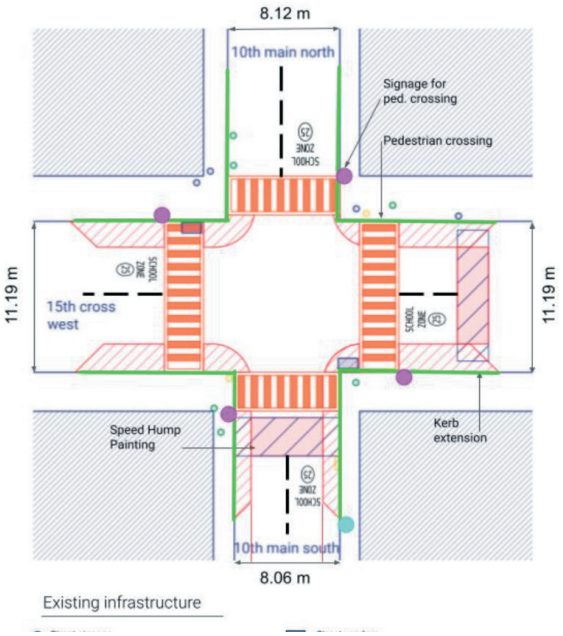
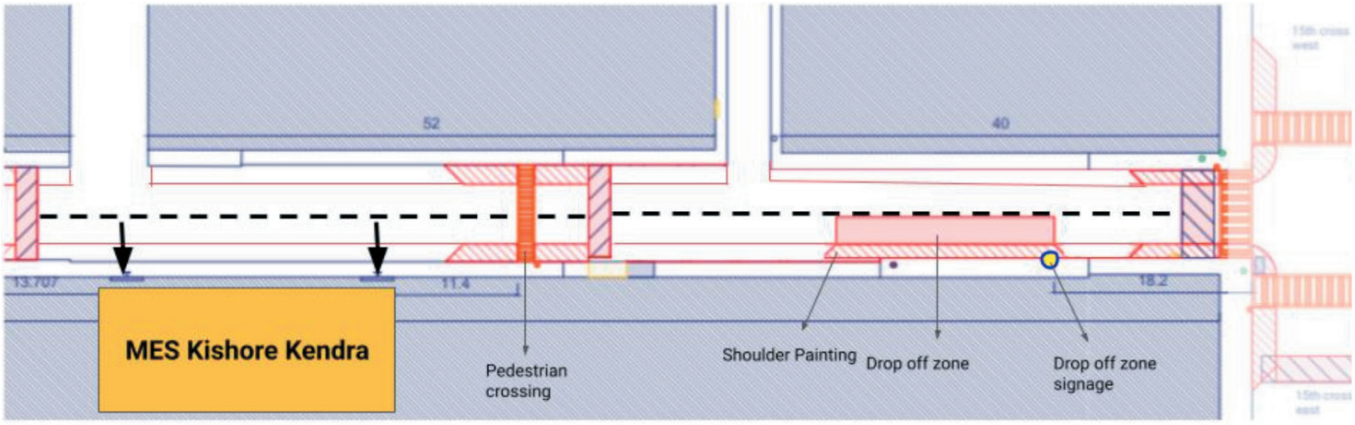


Figure 16: Junction type 2 detailed drawing

Drop-off zone: 10th main



	Proposed interventions	Qty
	Shoulder painting (for drop off and midblock)	2
	Drop off zone (20m x 2.75m)	1
	Pedestrian crossing	1
	Speed hump painting	2
	Drop off zone signage (movable signage)	1
	Pedestrian crossing signage	1

Figure 17: Drop-off zone detailed drawing

G. Evaluating the SSZ Program

Objectives	Outputs	Evaluation methods
Streamlining safer movement for children by minimising pedestrian-vehicular conflict.	Safe and standardised pedestrian infrastructure such as footpaths and crossings.	1. Post implementation junction & SAZ survey. (quantitative survey) 2. Perception survey rating safety during crossing of roads, walking to school and walking to/from drop-off zones. (qualitative survey) 3. Documenting traffic related accidents and conflicts in the SSZ. (quantitative survey) 4. Enumerate students taking active transit modes to school. (quantitative survey - Show of hands survey from Annexure 1 may be used)
Enabling safe alighting and boarding of children through demarcating designated drop-off and pick zones near schools.	Delineated drop-off and pick-up zones.	
Ensuring obstruction and encroachment-free footpaths and lines of sight to increase the visibility of children to motorists.	Removal of encroachments and obstructions near crossings and drop-off zones.	
Communication of presence of school zones and its restrictions.	Standard signage and road markings in the SSZ.	
Traffic calming measures to actively reduce speed.	TBM and speed humps near crossings and school gates.	5. Speed monitoring through pneumatic tubes. (quantitative survey)

Table 11: Evaluation and outputs of the SSZ Program

3.5 Stakeholder Roles & Responsibilities

The following chart maps the roles and responsibilities of all the stakeholders in a SSZ plan. The chart follows the RASI template, each role R,A,S & I are described below:

R - Directly responsible to accomplish the task.

A - Has approval or authority over a task.

S - Is supporting the task (generally through activities that allow the overall goal to be accomplished).

I - Stays informed about the task – although this is not passive, and those in the [I] column have an obligation to stay up to date.

Table 12: Stakeholder roles & responsibilities

S. No	Responsibilities	School, Parents, Students	Residents / RWA / NGO	Traffic Police	ULB
1	**Initiating the program***	**R**	**R**	**S**	**I**
2	**Identification of issues, solutioning, and prioritisation of interventions**	**R**	**S**	**S**	**I**
3	**Indicative layout of interventions**	**S**	**R**	**I**	**I**
4	**Validating feasibility of interventions**	**S**	**R**	**A**	**A**
5	**Facilitate consensus building****	**S**	**R**	**S**	**S**
6	**Active communication and engagement with core team to create feedback loops**	**S**	**R**	**I**	**I**
7	**Co-creation of the traffic management plan**	**R**	**S**	**R,A**	**I**
8	**Enforcement of traffic management plan**	**R**	**I**	**R**	**S**
9	**Detailing of solutions, Budgeting, Tendering Implementation strategy**	**I**	**I**	**I**	**R,A**
10	**Community feedback on proposal**	**S**	**S**	**S**	**R**
11	**Execution**	**I**	**I**	**I**	**R**

**The program can be initiated by the School or the ULB*

*** Consensus building needs to be undertaken with the larger residents of the neighbourhood and the street the school is present in*

4 Annexures

4.1 Annexure I: Show of Hands Survey

Date: _____ Grade: _____

Teacher name: _____ School: _____

Weather: Rain/ Hot/ Overcast No. of students in class: _____

**Survey needs to be repeated twice everyday: Morning & Evening*

Walk	**Bicycle**	**School Bus**	**Public Bus**
Morning	*Morning*	*Morning*	*Morning*
Evening	*Evening*	*Evening*	*Evening*

Metro	**Parent/ Guardian's 2-wheeler**	**Parent/ Guardian's car**	**Private Van**
Morning	*Morning*	*Morning*	*Morning*
Evening	*Evening*	*Evening*	*Evening*

Shared auto rickshaw	**Private auto rickshaw**	**Parent/ Guardian's Bicycle**	**Friends' Parents' vehicle**
Morning	*Morning*	*Morning*	*Morning*
Evening	*Evening*	*Evening*	*Evening*

Other (please mention each) .....

.....

.....

4.2 Annexure II: Parents' Survey

Date: _____ Grade: _____

Teacher name: _____ School: _____

1	Please mention the gender of your child.	Boy / girl
2	Which grade is your child studying in?	
3	How far does your child have to travel to reach their school?	☐ Less than ½ km ☐ ½ km to 1 km ☐ 1 km to 2 km ☐ More than 2 km
4	On a typical day, how does your child travel to school (select the mode used for longest distance and maximum number of days):	☐ Walk ☐ Bicycle ☐ Public bus ☐ Metro ☐ School Bus ☐ Private van / shared auto ☐ Parent / guardians two wheeler ☐ Parent / guardians four wheeler
5	On a typical day, how does your child return from school (select the mode used for longest distance and maximum number of days):	☐ Walk ☐ Bicycle ☐ Public bus ☐ Metro ☐ School Bus ☐ Private van / shared auto ☐ Parent / guardians two wheeler ☐ Parent / guardians four wheeler
6	If you stay within 2km from the school and your child does not walk, bicycle or ride the bus, will you be comfortable allowing your child to use these modes to school?	Yes / No
7	If no, please select the reason(s)	☐ Multiple trips/stopovers to come from home to school ☐ Multiple trips/stopovers to reach home from school ☐ Quality of footpath infrastructure ☐ High volumes of traffic ☐ Crime and violence ☐ Weather ☐ Traffic speeds on school routes ☐ Lack of adult companions (especially when small) ☐ Lack of traffic personnel at junctions ☐ Lack of provision of parking space and security of cycles near the school
8	At which grade would you allow your child to walk, bicycle, or ride the bus/metro to school.	

4.3 Annexure III: School Survey

Date: _____ Address: _____

School: _____ Point of Contact: _____

1	What are the school's opening timing for different grades	
2	What is the period when drop off and picks generally happen?	
3	Does the school arrange any form of transport for the students? If yes, mention the mode	Yes / No mode: .....
4	What is the parking capacity inside the school compound	..... Cycle parking ..... 2 wheelers ..... 4 wheelers ..... School bus ..... School Vans
5	What is the amount of street parking space required by the school outside	..... Cycle parking ..... 2 wheelers ..... 4 wheelers ..... School bus ..... School Vans
6	Is there any other traffic management measures taken by the school? Plans could include separate entry gates for different access modes.	
7	What is the percentage of parents who come to drop off their children to school?	
8	Is there a designated drop off location	
9	Does the school permit pick-up / drop-off inside the school compound?	
10	Does the school supervise drop-off, if so who is involved?	☐ Parents ☐ School teachers ☐ Marshals / Security guard ☐ Student volunteers
11	Is there any traffic management undertaken during pick-up and drop-off? If yes by whom?	☐ Traffic police ☐ Marshals / Security guard ☐ Parents ☐ School teachers ☐ Student volunteers
12	Do students have to cross a parking lot / driveway to access school?	Yes / No
13	Is there someone who supervises crossing near the school? If yes, by whom ?	☐ Traffic police ☐ Marshals / Security guard ☐ Parents ☐ School teachers ☐ Student volunteers

4.3 Annexure III: School Survey

14	Do you have shaded waiting areas for children to be picked up?	Yes / No
16	Do you observe heavy automobile traffic around the school?	Yes / No
17	Have you observed or heard of an accident near the school?	Yes / No
18	Does the school have playground within the compound? If not, how far is the playground from the school?	Yes / No Distance ..... m
19	If the playground is far from the school, how do the students travel to the playground?	
20	Do students walk to any of these during school hours?	☐ Playground ☐ Library ☐ Bakery / convenience store

4.4 Annexure IV: Activity Calendar

School: ______________________ Class: ______________________

Year: ______________________

Month: ______________________

🚦 *Activity*	🔢 *Class*	📅 *Date*
	All	

^ Daily activity
**** Repeats every month***
***** Repeats once in 2 months***
Others: Parents, Teachers, Private Van/Auto/Bus Drivers, Community

Month: ______________________

🚦 *Activity*	🔢 *Class*	📅 *Date*

^ Daily activity
**** Repeats every month***
***** Repeats once in 2 months***
Others: Parents, Teachers, Private Van/Auto/Bus Drivers, Community

Month: ______________________

🚦 *Activity*	🔢 *Class*	📅 *Date*

^ Daily activity
**** Repeats every month***
***** Repeats once in 2 months***
Others: Parents, Teachers, Private Van/Auto/Bus Drivers, Community

Month: ______________________

🚦 *Activity*	🔢 *Class*	📅 *Date*

^ Daily activity
**** Repeats every month***
***** Repeats once in 2 months***
Others: Parents, Teachers, Private Van/Auto/Bus Drivers, Community

4.4 Annexure IV: Activity Calendar

Pg. 2/2

Month: ______________________________

🚦 *Activity*	🔢 *Class*	📅 *Date*

^ Daily activity
** Repeats every month*
*** Repeats once in 2 months*
Others: Parents, Teachers, Private Van/Auto/Bus Drivers, Community

Month: ______________________________

🚦 *Activity*	🔢 *Class*	📅 *Date*

^ Daily activity
** Repeats every month*
*** Repeats once in 2 months*
Others: Parents, Teachers, Private Van/Auto/Bus Drivers, Community

Month: ______________________________

🚦 *Activity*	🔢 *Class*	📅 *Date*

^ Daily activity
** Repeats every month*
*** Repeats once in 2 months*
Others: Parents, Teachers, Private Van/Auto/Bus Drivers, Community

Month: ______________________________

🚦 *Activity*	🔢 *Class*	📅 *Date*

^ Daily activity
** Repeats every month*
*** Repeats once in 2 months*
Others: Parents, Teachers, Private Van/Auto/Bus Drivers, Community

4.5 Annexure V: IRC Sources

Guardrails - *Ref: Section 5.4.2, IRC:SP:32.*

Pedestrian Crossing - *Ref: Section 6.7, IRC:103., Ref: Section 5.4.3, IRC:SP:32.*
Kerb Extension - *Ref: Section 6.2.3,6.7.2, IRC:103.*

Pedestrian crossing signage - *Ref: Section 15.27, IRC:67*

Footpath - *Ref: Section 6.1.3, IRC:103*

Refuge island - *Ref: Section 5.4.4, IRC:SP:32.*

Centre line marking - *Ref: Table 4.3, IRC:35*

Drop-off zone marking - *Ref: Section 5.3.2, IRC:SP:32*

Drop-off zone signage - *Ref: Section 5.3.2, IRC:SP:32*

No Parking signage - *Ref: Section 5.10, IRC:SP:32, Section 14.8.5, IRC:67*

Zig-Zag Road marking - *Ref: Section 5.10, IRC:SP:32,*

School zone ahead signage - *Ref: Section 5.8, IRC:SP:32*

School zone ahead road marking - *Ref: Section 5.87, IRC:SP:32 , Table C1, IRC:35*

Beacons - *Ref: Section 5.9, IRC:SP:32*

Speed limit signage - *Ref: Section 5.8, IRC:SP:32*

Speed limit road marking - *Ref: Section 5.87, IRC:SP:32 Ref: Table C1, IRC:35*

Yellow carpet zones - *Ref: Section 6, IRC:SP:32*

Enforcement considerations - *Ref: Section 5.10, 5.11, IRC:SP:32*

4.6 Annexure VI: Junction Survey

Date: _____ Address: _____

Junction Name: _____ School: _____

Audit Parameters		Junction Name			
		Road:	Road:	Road:	Road:
1	Does this road lead to the school?	Yes/No	Yes/No	Yes/No	Yes/No
2	Are there clearly marked pedestrian crossings on the road?	Yes/No	Yes/No	Yes/No	Yes/No
3	Are there pedestrian signals to cross the road?	☐ Yes - 1 side ☐ Yes - 2 sides ☐ No	☐ Yes - 1 side ☐ Yes - 2 sides ☐ No	☐ Yes - 1 side ☐ Yes - 2 sides ☐ No	☐ Yes - 1 side ☐ Yes - 2 sides ☐ No
4	Are there refuge islands on the roads?	Yes/No	Yes/No	Yes/No	Yes/No
5	Select the signage that are present	☐ Pedestrian crossing ☐ Speed limits ☐ School Zone ahead ☐ Others if any	☐ Pedestrian crossing ☐ Speed limits ☐ School Zone ahead ☐ Others if any	☐ Pedestrian crossing ☐ Speed limits ☐ School Zone ahead ☐ Others if any	☐ Pedestrian crossing ☐ Speed limits ☐ School Zone ahead ☐ Others if any
6	Are there any obstructions to the line of sight of motorists/ pedestrian before crossing?	Yes/No - If yes, ☐ Parking, ☐ Vending, ☐ Junction box, ☐ Transformers, ☐ Signage, ☐ Others	Yes/No - If yes, ☐ Parking, ☐ Vending, ☐ Junction box, ☐ Transformers, ☐ Signage, ☐ Others	Yes/No - If yes, ☐ Parking, ☐ Vending, ☐ Junction box, ☐ Transformers, ☐ Signage, ☐ Others	Yes/No - If yes, ☐ Parking, ☐ Vending, ☐ Junction box, ☐ Transformers, ☐ Signage, ☐ Others
7	Are there any traffic calming interventions at the intersections on the roads?	☐ Transverse Bar Markings ☐ Speed Hump ☐ Both, ☐ Neither	☐ Transverse Bar Markings ☐ Speed Hump ☐ Both, ☐ Neither	☐ Transverse Bar Markings ☐ Speed Hump ☐ Both, ☐ Neither	☐ Transverse Bar Markings ☐ Speed Hump ☐ Both ☐ Neither
8	Are there road markings of speed limits and school zones present on the road?	Yes/No	Yes/No	Yes/No	Yes/No

4.6 Annexure VI: Junction Survey

9	Condition of Shoulder	☐ Asphalt ☐ Dirt ☐ Broken ☐ 1 side ☐ 2 sides	☐ Asphalt ☐ Dirt ☐ Broken ☐ 1 side ☐ 2 sides	☐ Asphalt ☐ Dirt ☐ Broken ☐ 1 side ☐ 2 sides	☐ Asphalt ☐ Dirt ☐ Broken ☐ 1 side ☐ 2 sides
10	Condition of Footpath	☐ Good ☐ Needs maintenance ☐ Broken ☐ 1 side ☐ 2 sides	☐ Good ☐ Needs maintenance ☐ Broken ☐ 1 side ☐ 2 sides	☐ Good ☐ Needs maintenance ☐ Broken ☐ 1 side ☐ 2 sides	☐ Good ☐ Needs maintenance ☐ Broken ☐ 1 side ☐ 2 sides
11	Width of Shoulder (in m)				
12	Width of Footpath (in m)				

4.7 Annexure VII: SAZ Survey

Date: _____ SAZ Road: _____

School: _____ Gate no: _____

**Audit needs to be repeated at every road there is a school gate*

At the School Gate		
1	What is the SAZ Typology?	☐ Corner block ☐ Mid block School
2	Are there crossing supervisors as part of the school safety patrol team?	Yes/No
3	Are there designated pedestrian entry/exit points at the school gate?	Yes/No
4	How many access gates are present at this road?	
At the SAZ stretch		
4	Are there drop-off/ pick points?	☐ Designated ☐ Managed ☐ Both ☐ Neither
5	Is parking prevalent on the road?	Yes/No
6	Are there traffic blocking measures/restriction taking place in the SAZ?	Yes/No Description:
7	Is there a mid-block crossing present?	Yes/No
8	Are refuge islands present at the crossing?	Yes/No
9	Are guard rails present along the footpath?	Yes/No
10	Are traffic calming measures present?	☐ Transverse Bar Markings ☐ Speed hump ☐ Both ☐ Neither
11	Select the signage that are present	☐ Pedestrian crossing ☐ Speed limits ☐ School Zone ahead ☐ Drop-off/ Pick-up zone ☐ Others if any

4.7 Annexure VII: SAZ Survey

12	Are flashing beacons present?	Yes/No
13	Are road markings present?	☐ School ahead ☐ Speed limit, ☐ Zig zag marking ☐ None of the above
14	Are there encroachments on the footpath?	Yes/No - If yes, check the following: ☐ Parking ☐ Vending ☐ Junction box ☐ Transformers ☐ Signage ☐ Others
15	What is the direction of traffic	☐ One way ☐ Two way