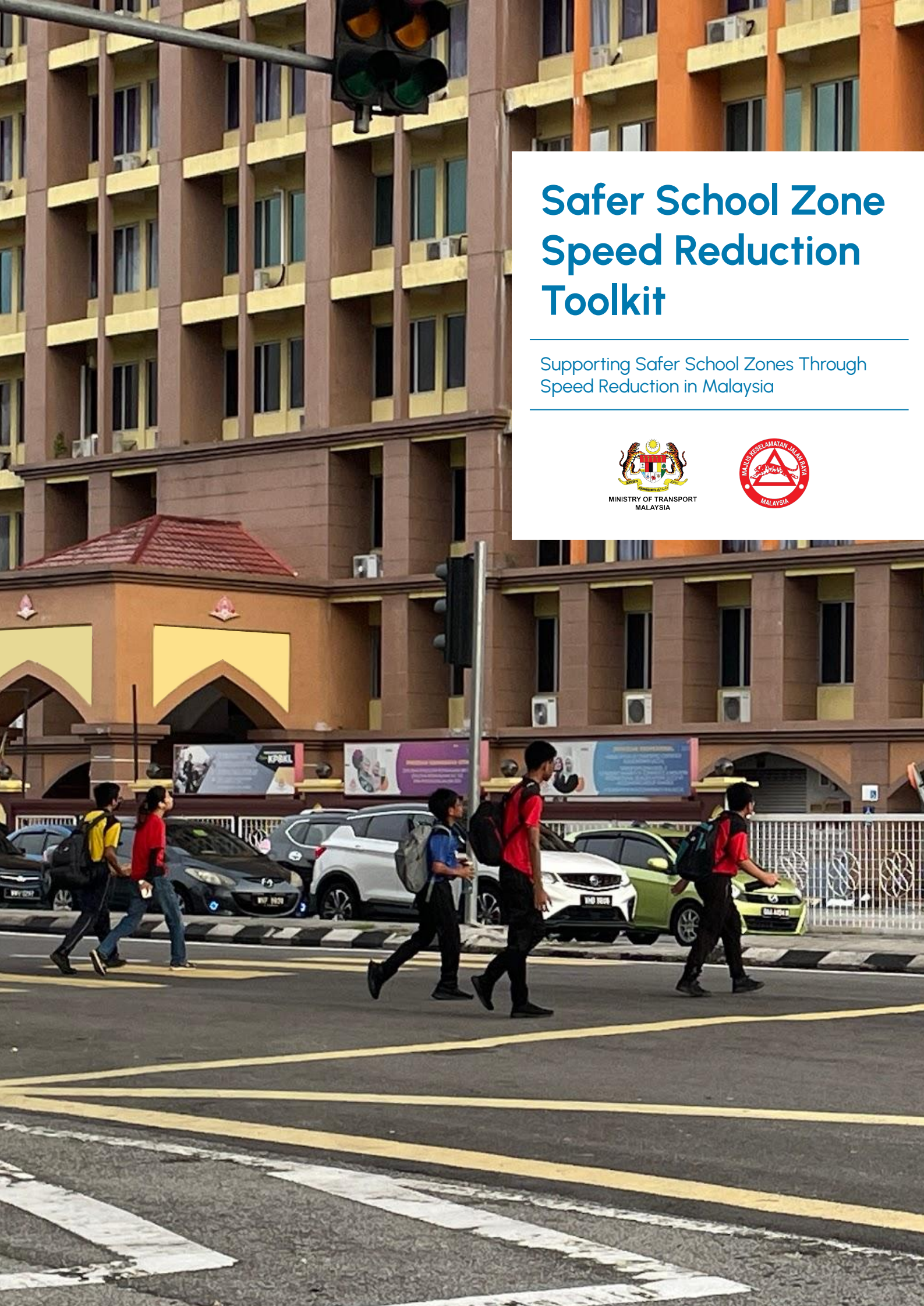


Safer School Zone Speed Reduction Toolkit

Supporting Safer School Zones Through Speed Reduction in Malaysia

MINISTRY OF TRANSPORT MALAYSIA

MAJLIS KESELAMATAN JALAN RAYA MALAYSIA

Foreword

As Minister of Transport and Chair of the Malaysian Road Safety Council (MKJR), I am pleased to introduce the Safer School Zone Toolkit. This document reflects our continued commitment to ensuring that every child in Malaysia can travel to and from school in a safer environment.

International and local evidence consistently shows that lowering vehicle speeds is the most effective measure to reduce the severity of road crashes. A 30 km/h environment is proven to lower the risk of death and serious injuries, and it is our responsibility to ensure that this becomes a reality across all school zones in the country.

This toolkit provides practical guidance for authorities and communities to implement safer, low-speed school streets. While the approach may differ from one location to another, the objective remains the same: to create school zones where the design of the street itself encourages slower, safer behaviour.

I commend MKJR and our key partners— MOE, KKR, KPKT, JKR, JPJ, MIROS, PlanMalaysia, UPM, and DBKL—for their collective effort in developing this toolkit. Their collaboration reflects the whole-of-government approach needed to achieve meaningful and evidence-based improvements. I would also like to express our appreciation to Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) and Commute Initiatives (Bike Commute Malaysia) for their strong support in shaping and strengthening this toolkit.

I urge all relevant agencies to make full use of this document and to prioritise speed-management measures in every school zone. By doing so, we honour our duty to protect our children and advance Malaysia's broader commitment to safer, more liveable streets.

Loke Siew Fook
Minister of Transport Malaysia
Chair, MKJR Malaysia

Table of Contents

Section 1

Introduction

This section outlines the need for the development of safer, compliant school streets across Malaysia. This guide supports the nationwide rollout of the mandatory 30 km/h speed limit in school zones by demonstrating how infrastructure is key to reducing speed and casualties.

Background and Context

On 15 July 2024, YAB Deputy Prime Minister Datuk Seri Dr Ahmad Zahid Hamidi made a momentous declaration to endorse a national policy to set a mandatory speed limit of 30 km/h in school zones.

In April 2025, Transport Minister YB Anthony Loke a follow-up plan was announced to gazette a 30 km/h speed limit in all school zones. Following this, the Road Safety Council of Malaysia (MKJR) has spearheaded a concerted effort involving multiple ministries, agencies, and civil society groups to develop comprehensive strategies for enforcement, advocacy, and infrastructure upgrades necessary to make the 30 km/h limit mandatory nationwide.

Every year, over 6,000 lives are tragically lost on Malaysian roads. Each fatality is a profound loss, not only to the families and loved ones, but also to our society and the nation's economy. Alarmingly, in areas surrounding schools alone, an average of 70 lives are lost annually due to road crashes. This is both astounding and unacceptable. Given Malaysia's advanced road infrastructure and growing transport capacity, we must do more.

On Average	**6,540**	People die **ANNUALLY** due to road crashes
On Average	**18**	Deaths **PER DAY** on Malaysian Roads
On Average	**70**	Deaths at **SCHOOL ZONES ANNUALLY**

Speed is a leading cause of road crashes and fatalities around the world

Prevention through Design

Preventing fatal road crashes is not just a goal, it is a necessity. We must prioritise road safety and invest in predictive measures to avoid these tragedies at all costs.

There is a growing movement to prioritize road safety, beginning with school zones. Protecting children on their journeys to and from school is a powerful way to create a ripple effect, improving safety across all school zones and the wider road network in our cities. According to the World Health Organization (WHO), speed is the leading risk factor in road fatalities — and the most effective factor to control in reducing harm.

In response, MKJR is developing the Safer School Zone project to support the introduction of mandatory 30 km/h speed limits around schools. The project will focus on high-risk school. It aims to upgrade school streets with speed-calming infrastructure, based on evidence-based international best practices that align with Malaysian guidelines and standards.

This toolkit serves as an official guide to assess, implement infrastructure measures, and document the development of safer school streets. The goal is to pilot model schools as a foundation for nationwide improvements, ensuring no child and no school is left behind. Ultimately, the objective is to eliminate fatal crashes around schools by ensuring that streets are designed to support a 30 km/h limit through self-enforcing infrastructure and appropriate enforcement.

Objectives

The primary objective of this toolkit is to **support the implementation of the 30km/h speed limit policy** around school streets. This document will establish a coordinated approach to assess school streets that can be applied nationwide. Following the toolkit and processes outlined herein, we aim to:

- Reduce death and injuries around schools and across the country.
- Improve overall road safety conditions, with a focus on school zones, to reduce speeds to 30km/h through design.
- Identify infrastructure gaps and support schools, local authorities (PBT), and relevant agencies in implementing evidence-based interventions that reduce vehicle speeds.
- Prioritize budget allocation to ensure safe school street interventions are implemented effectively.
- Develop and showcase models of safe school streets that can be replicated nationwide.

Section 2

Evidence Based Speed Reduction Measures

This section outlines the evidence based speed reduction measures for school zones. It provides necessary guiding details and specifications to assist local authorities in implementing safer streets around schools.

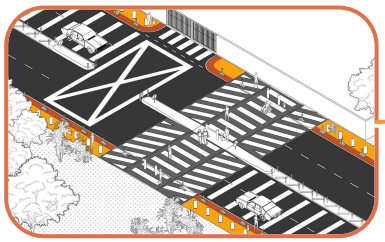
The required speed reduction measures include:

1. Road Narrowing and Pedestrian Separation
2. Raised Pedestrian Crossing
3. Medians or Pedestrian Refuge Islands

Evidence Based Speed Reduction Measures

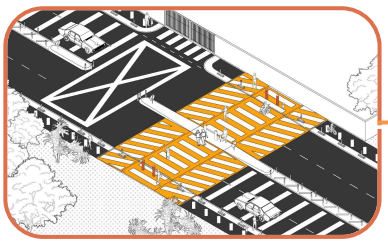
These measures are designed for school zones designated at 30km/h. Combined, these measures significantly reduce vehicle speeds.

1. Road Narrowing and Pedestrian Separation



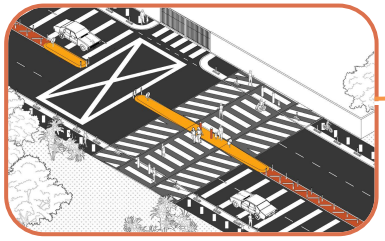
Decreasing the road width encourages drivers to stay attentive, while reducing speeds. Protective elements improve pedestrian separation and safety from vehicles.

2. Raised Pedestrian Crossing

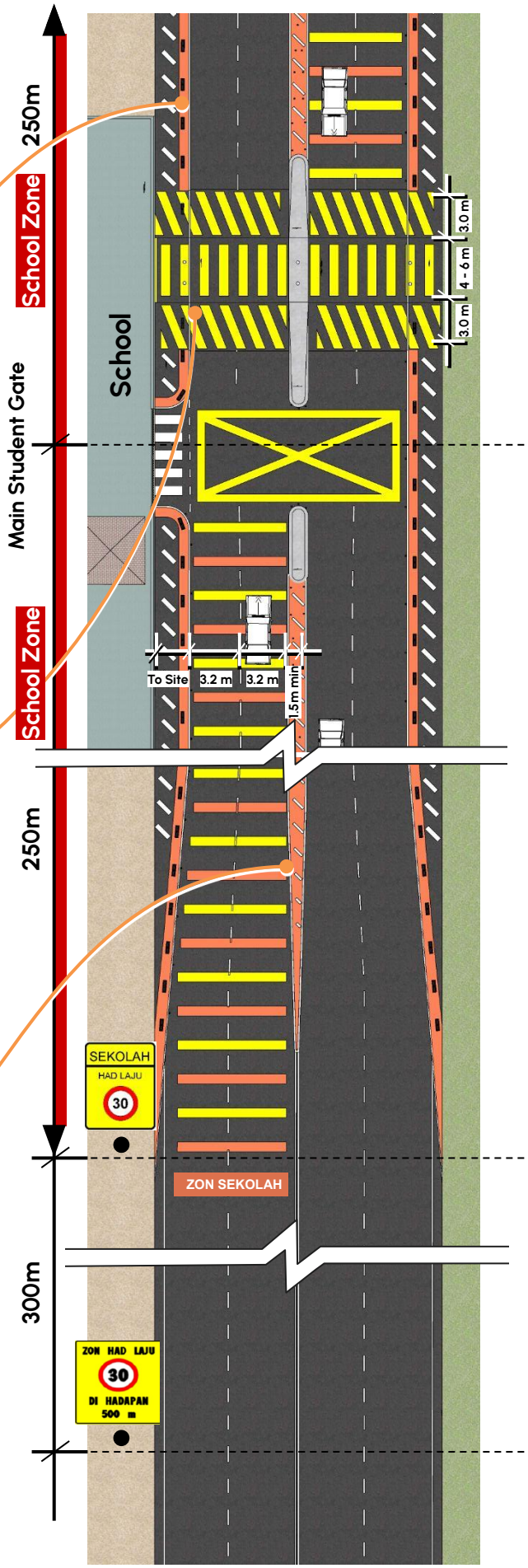


This component slows down vehicles and provides safer access for pedestrians including wheelchair users, while increasing pedestrians visibility to drivers.

3. Median or Pedestrian Refuge Islands



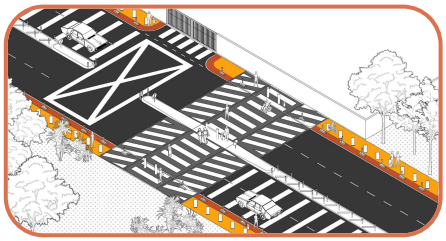
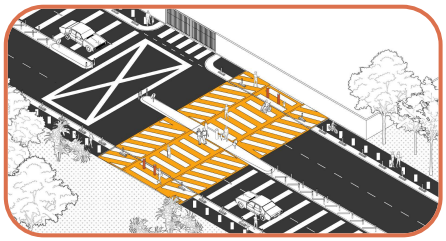
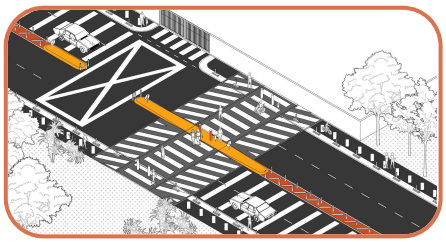
Refuge islands provide a safe place for pedestrians to wait mid crossing and reduce vehicle speeds by narrowing the road.



Evidence Based Speed Reduction Measures

These measures are designed for school zones designated at 30km/h. Combined, these measures significantly reduce vehicle speeds.

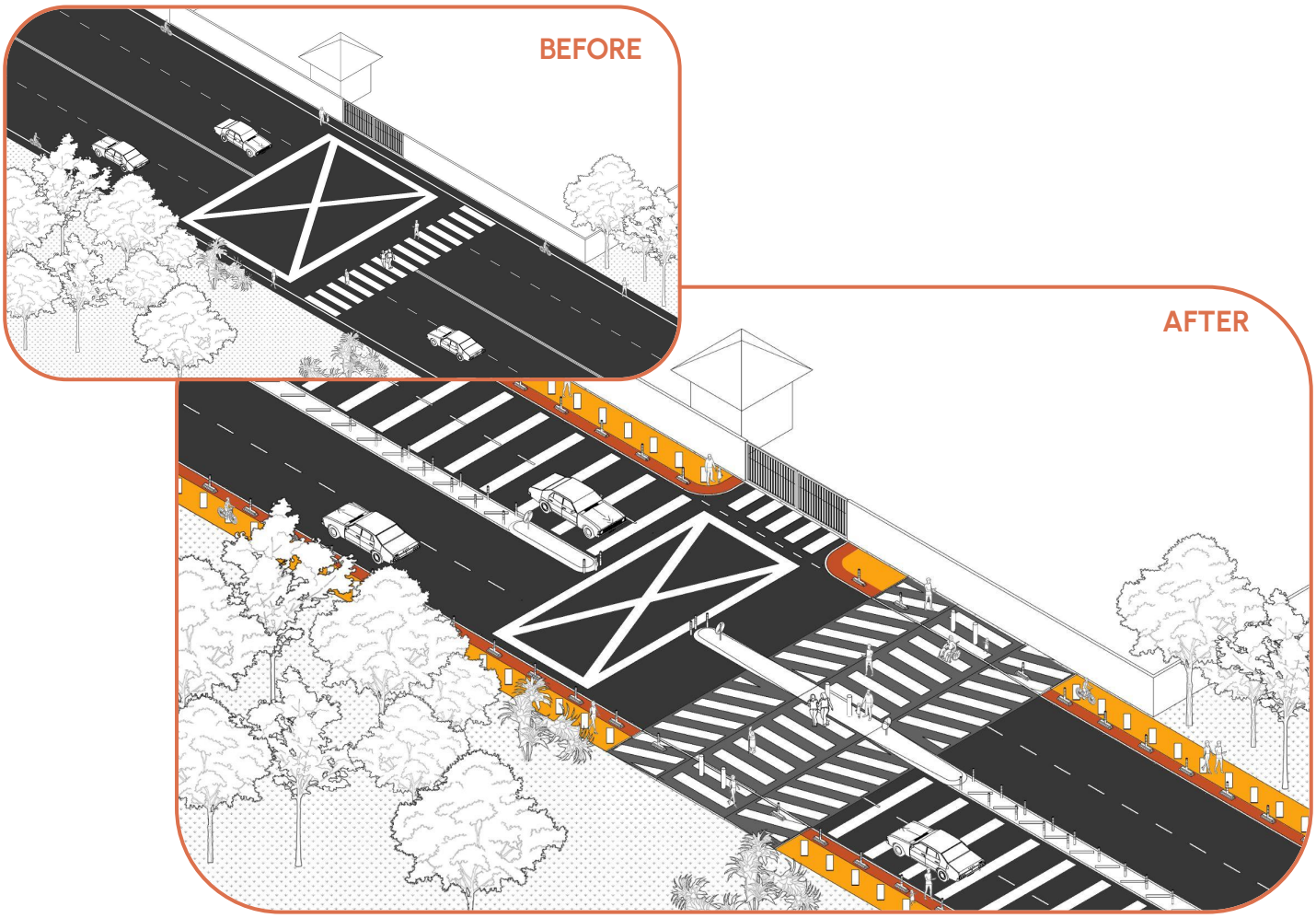
Each school must have the following components to reduce speed in a school zone:

No.	Item	Description	
1.	Road Narrowing and Pedestrian Separation 	**Applies to all roads:**	
		Lane Width	
		1 lane road	3.3m maximum per lane
		>1 lane road	3.2m maximum per lane
		Lane Block with Flexible Poles	At least 60 pcs.
		Road Narrowing Separation	500m total length (thermoplastic or other materials)
2.	Raised Pedestrian Crossing 	**Applies to all roads:** All schools must have **at least one raised pedestrian crossing at a main student entrance** with the following specifications:	
		Crossing Height	Minimum 80mm high or the same heights as the sidewalk
		Crossing Width	4-6m
		Metal Bollards	At least 4 pcs
3.	Median or Pedestrian Refuge Islands 	**Applies to roads wider than 8.0m in total:** Either **a median** or **at least one physical protected pedestrian refuge island** is needed.	
		Refuge Island	Minimum width of 1.5m
		Metal Bollards	At least 2 pcs. Recommended clearance width of 1.2m apart
		Road Buffer	500m total length (thermoplastic or other materials)
		Flexible Poles	At least 20 pcs

These interventions should be designed in accordance with relevant road design standards and safety guidelines, with due consideration of engineering judgement, to ensure their effectiveness and alignment with best engineering practice.

Evidence Based Speed Reduction Measures

1. Road Narrowing and Pedestrian Separation



These are key practices for enhancing road safety and slowing down speeds around the school zone.

Road narrowing involves reducing the width of vehicle travel lanes typically through adjusting road widths, through road markings, adding curb extensions, or reallocating street space—to actively slow vehicle speeds and shorten pedestrian crossing distances.

Complementing this, **pedestrian separation** can be incorporated into road narrowing by establishing a physical separation between pedestrians and vehicle lanes using vertical barriers like curbs, flexible poles or bollards.

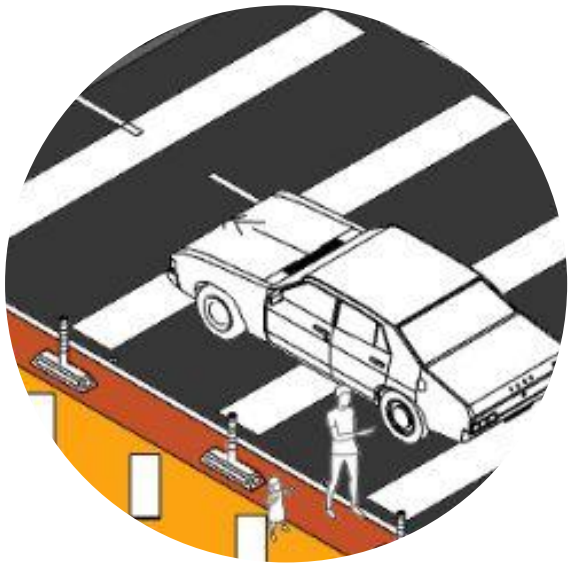
This creates a safer walking space and a continuous pavement, Road narrowing also reinforces the designed constraint on vehicle movement, ensuring drivers adhere to the lower speed limit.

Evidence Based Speed Reduction Measures

1. Road Narrowing and Pedestrian Separation

How do they save lives?

These measures save lives by getting drivers to slow down and by reducing crossing distances for pedestrians and other vulnerable road users.



Increases protection:

Physical barriers and dedicated spaces for walking/cycling to protect vulnerable users by eliminating high-speed conflicts and shortening the time pedestrians are exposed to traffic.

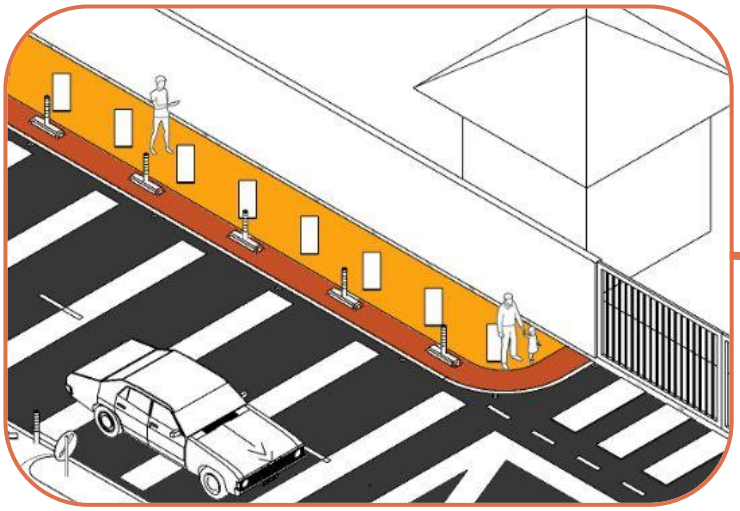
Improves order:

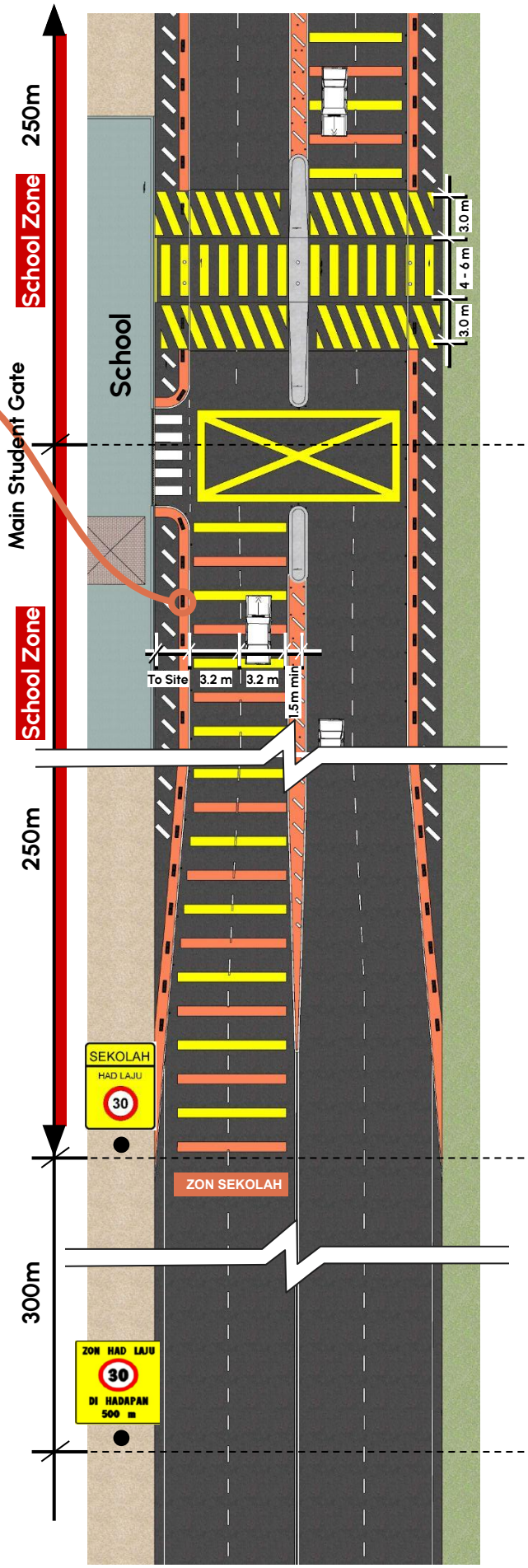
Clear, dedicated space for all road users makes street behaviour predictable, leading to fewer sudden conflicts and ensuring drivers adhere to the mandated lower speed limit.

Lane narrowing was achieved at SK Danau Kota 2 school, Kuala Lumpur by DBKL using a combination of low cost materials including flexible poles and concrete curbs. This guides vehicles to move more predictably and encourages lower speeds.

Evidence Based Speed Reduction Measures

1. Road Narrowing and Pedestrian Separation





How this is done :

1. Narrow all lanes to **3.3m** for single roads and **3.2m** for multi-lane roads.
2. Use 60 flexible poles to block lanes, placing 15 poles near the school entrance on all four sides.
3. Apply 250m of thermoplastic to install new road markings on each side of the road, totaling 500m.

Thermoplastic Marking

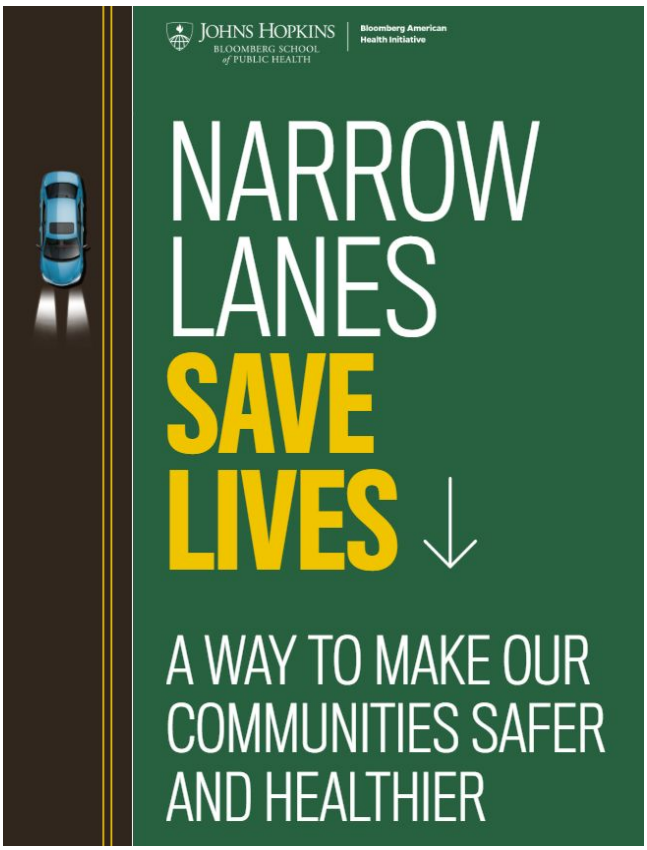
Lane Block with Flexible Pole

This component is aligned with the specifications in JKR national documents and guidelines.

Evidence Based Speed Reduction Measures

1. Road Narrowing and Pedestrian Separation

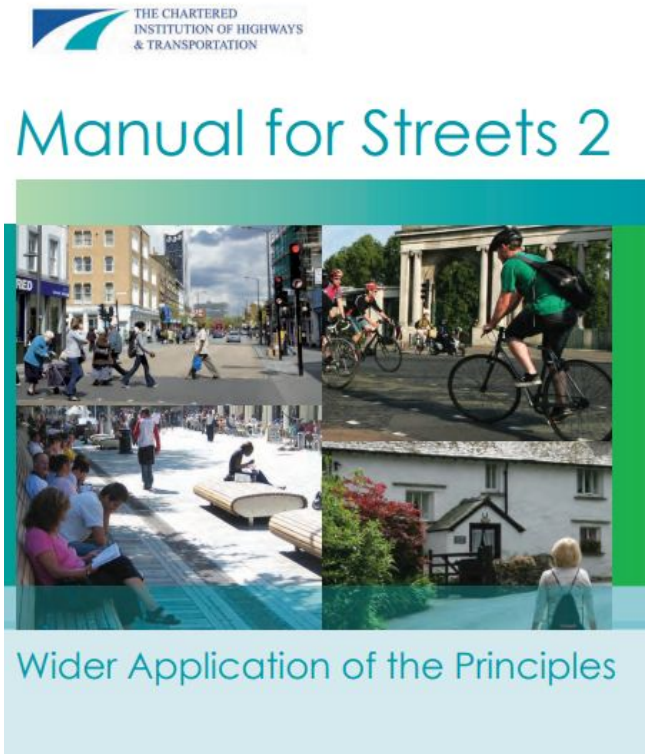
International Reference



One major finding is that roads with

[3-3.65 meter and larger] lanes have a significantly higher number of crashes

compared to those with [2.75m] lanes. Narrowing lane widths at these speeds provides city leaders with an opportunity to improve safety for all roadway users.

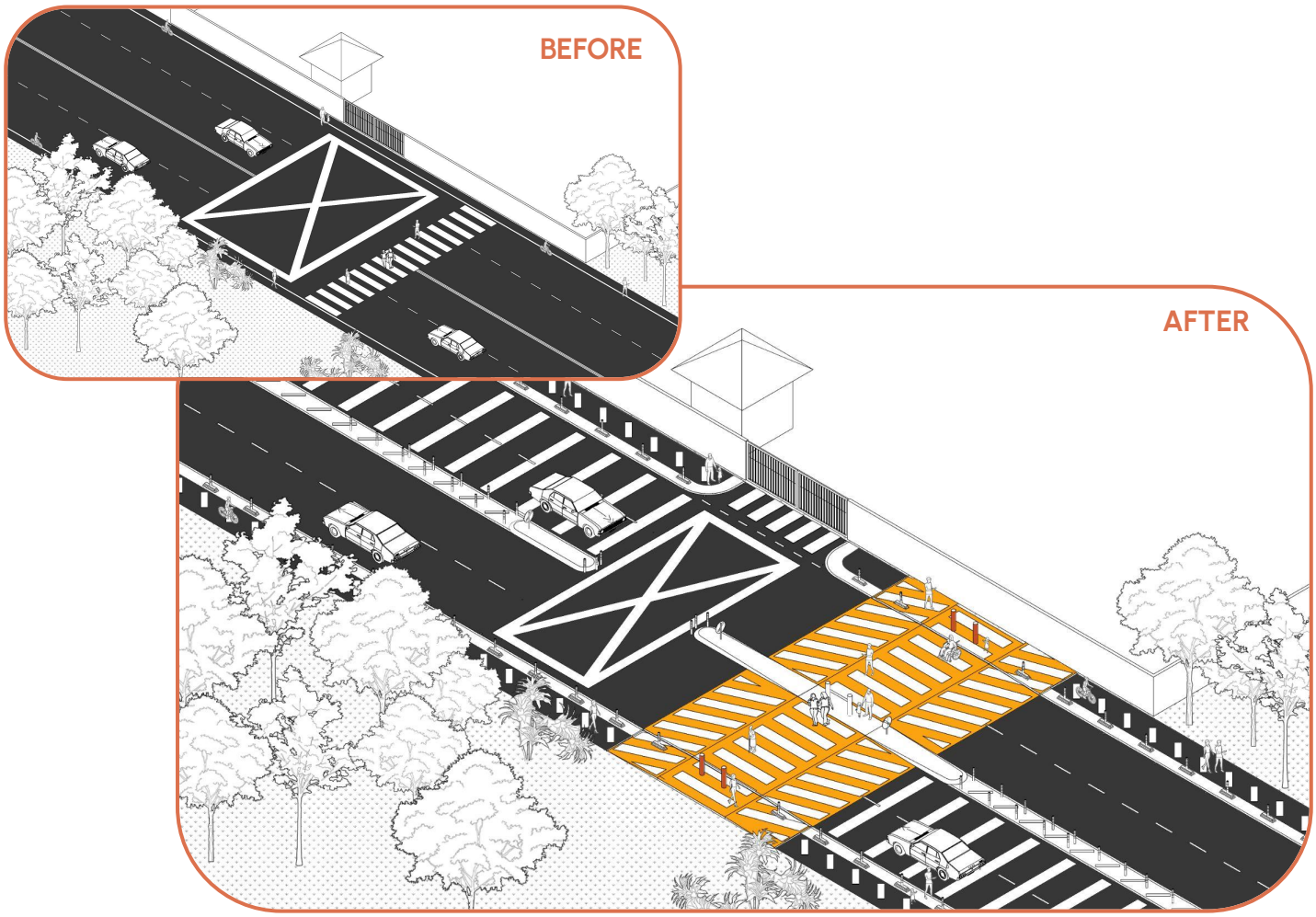


8.6.5 Thus for example, at a traffic signal stop line, where HGV's and buses make up only a small proportion of traffic flow, 2 - 2.5m wide lanes would be sufficient for most vehicles, and would reduce overall carriageway width requirements, making it much easier for pedestrians to cross the carriageway.

Lanes wider than 3m are not necessary in most urban areas carrying mixed traffic

Evidence Based Speed Reduction Measures

2. Raised Pedestrian Crossing

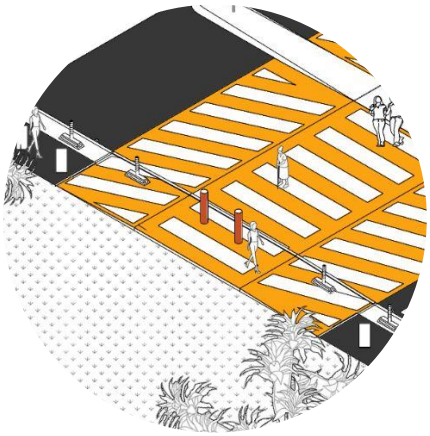


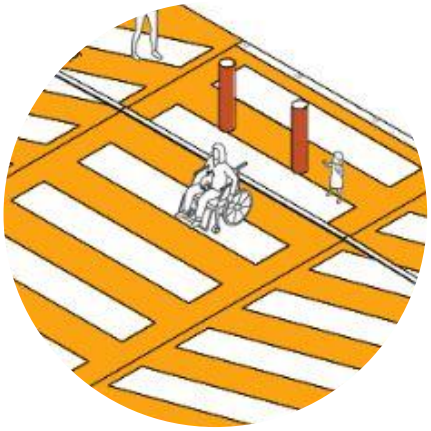
A non-signalized crossing or mid-block that is elevated to extend the level of the sidewalk across the street. This creates a continuous, flat surface for pedestrians, eliminating the need for them to step down when crossing the road.

Evidence Based Speed Reduction Measures

2. Raised Pedestrian Crossing

How do they save lives?





Enforces speed reduction:

They act as speed humps and a crossing, ensuring drivers slow down significantly. This lower speed increases reaction time and reduces the risk and severity of fatal crashes.

Improves pedestrian safety when crossing a street and provides seamless access

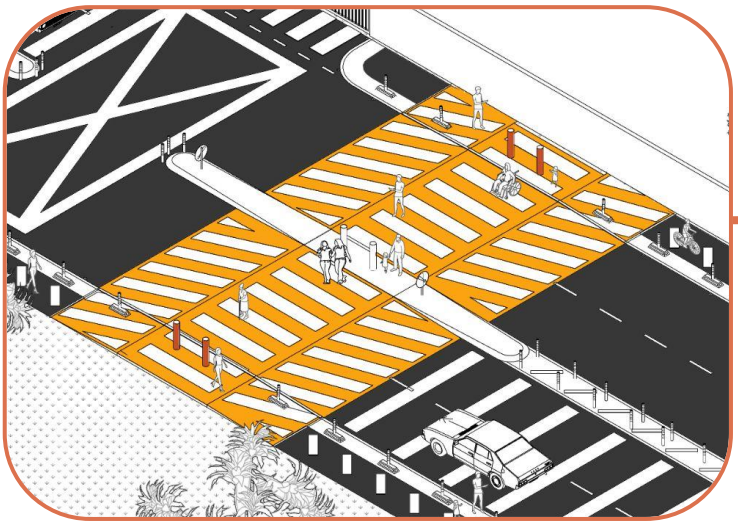
By elevating pedestrians to sidewalk level, they become highly visible to drivers. This design minimizes the time and risk that children and other vulnerable users are exposed to vehicle traffic. Wheelchair users also benefit from the seamless access to sidewalks

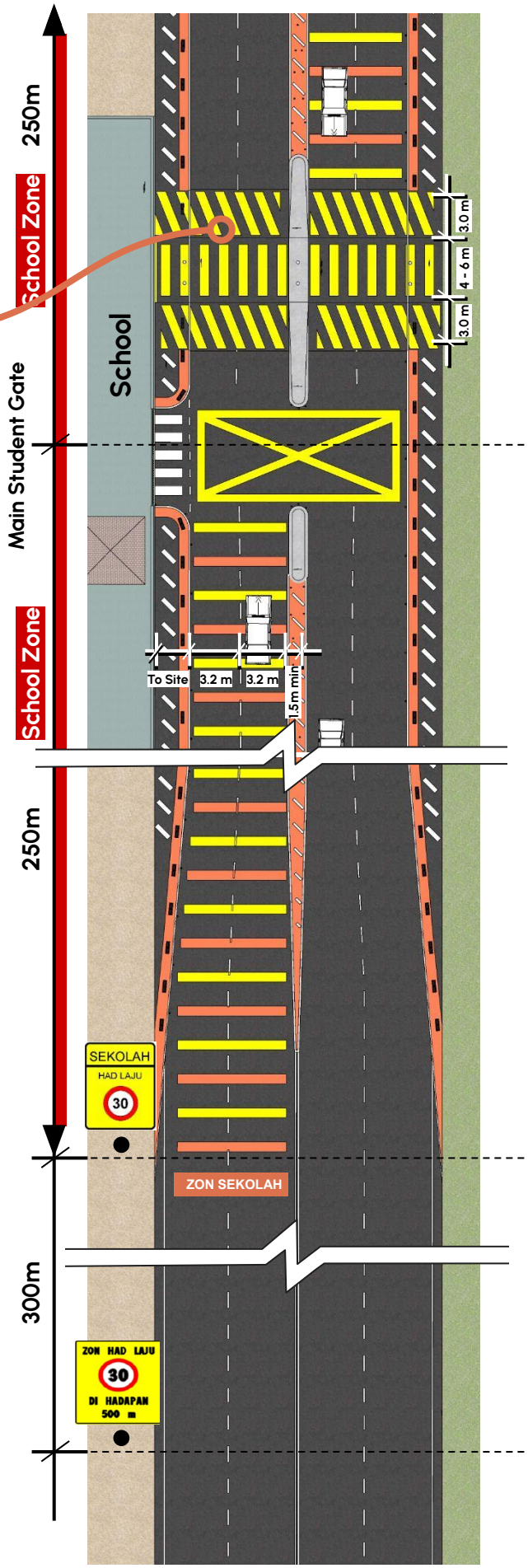
A safe crossing enables students to cross a street more safely if they are picked up and dropped off at the opposite side of the school entrance.

Raised pedestrian crossing at SK Danau Kota 2 school, Kuala Lumpur by DBKL providing safer, seamless access for children, wheelchair users, and cyclists. Cars slow down naturally and pedestrians are more visible to approaching vehicles.

Evidence Based Speed Reduction Measures

2. Raised Pedestrian Crossing

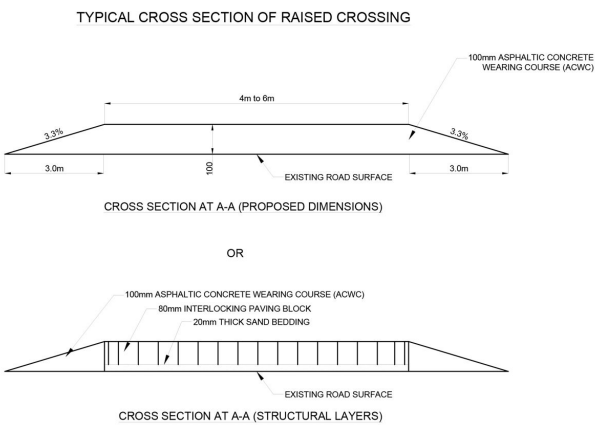




How this is done :

1. Raised crossing to be built at a height of **80mm minimum** or at the same heights of the sidewalk.
2. Ensure the crossing has a **width between 4-6m.**
3. Install a **minimum of four metal** bollards around the crossing for safety and visibility.

Metal bollard

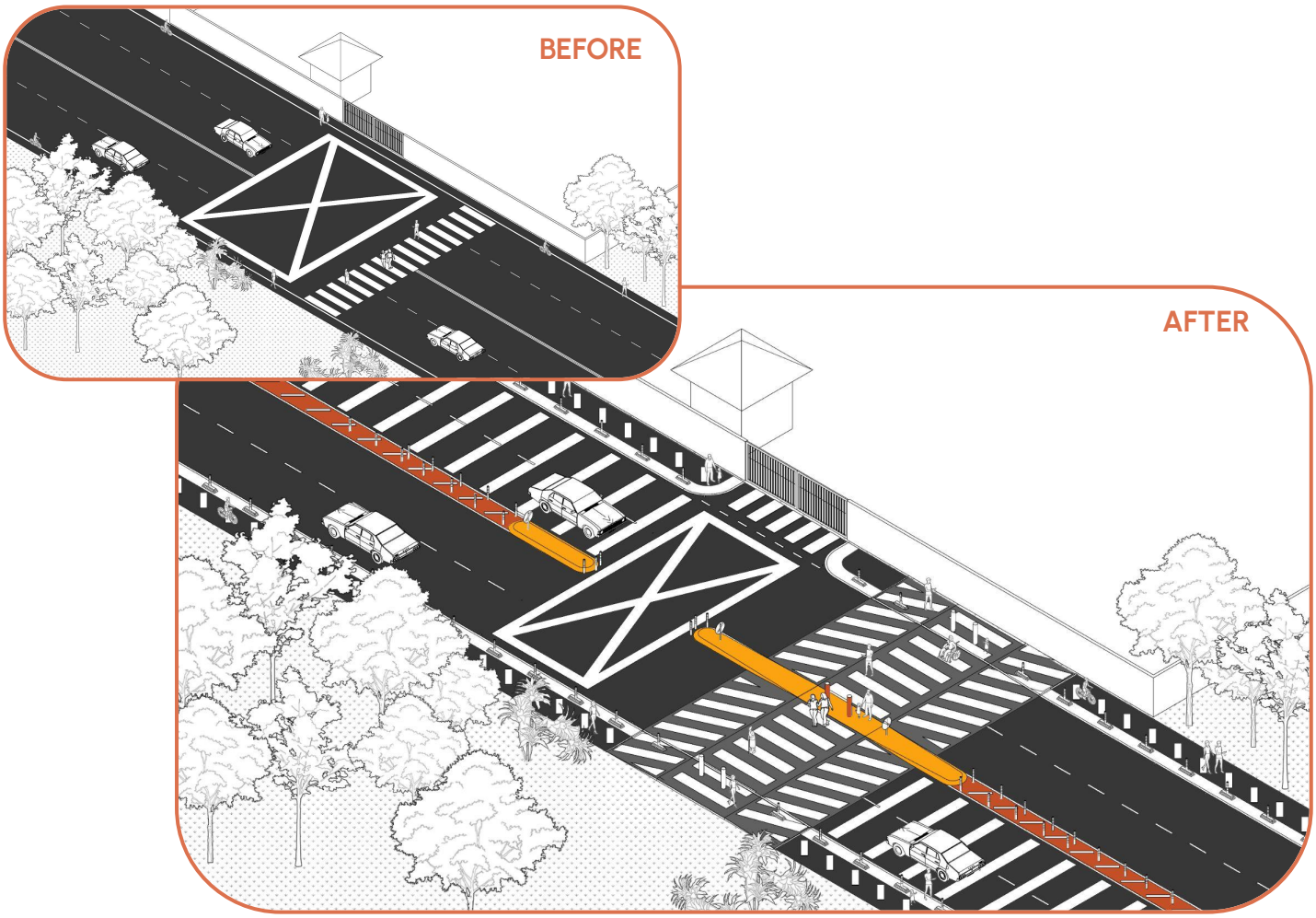


Typical Cross Section of Raised Crossing (ATJ/NTJ)

This component is aligned with the specifications in JKR national documents and guidelines.

Evidence Based Speed Reduction Measures

3. Median or Pedestrian Refuge Island



Medians and pedestrian refuge islands are a protected section in the middle of the road that gives people a safe place to wait mid crossing. It helps make wide or busy streets easier and safer to cross by allowing pedestrians to deal with one direction of traffic at a time.

Refuge islands are highly encouraged for roads wider than 8.0m.

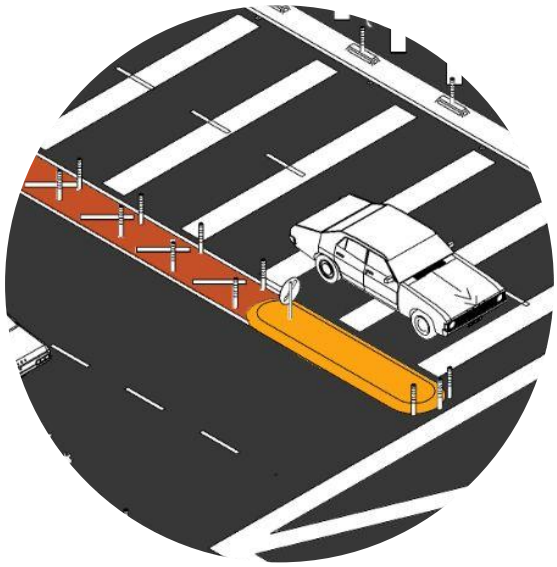
Median: A continuous strip (such as grass) separating traffic moving in opposite directions, which can also serve as a pedestrian refuge.

Pedestrian Refuge Island: A non continuous space separating traffic, while narrowing lanes. Also, serves as a space for pedestrians to wait while crossing the road.

Evidence Based Speed Reduction Measures

3. Median or Pedestrian Refuge Island

How do they save lives?



Safer waiting for pedestrians

A pedestrian refuge island provides a safe space for pedestrians to pause midway when crossing busy roads. It improves visibility to drivers, raises awareness of pedestrian activity, and allows crossing one direction of traffic at a time, enhancing overall safety.

Narrows lanes and Slows Vehicles:

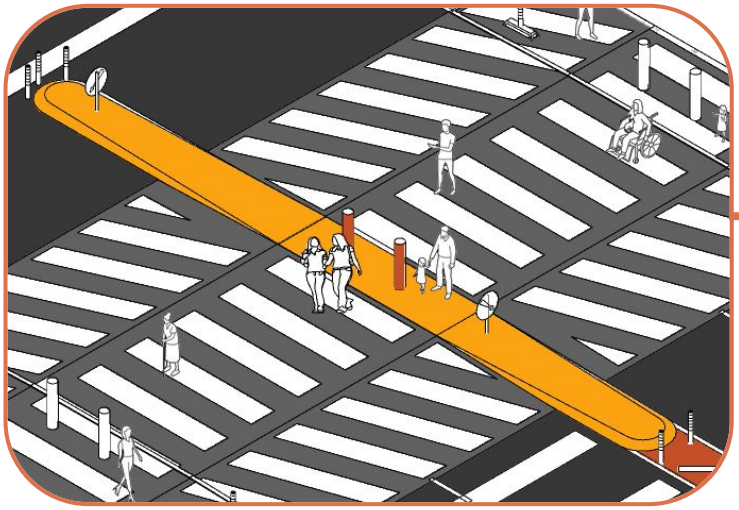
A pedestrian refuge island naturally calms traffic by visually narrowing the lanes and creating a central obstruction that encourages drivers to slow down. This helps reduce vehicle speeds and promotes safer, more orderly driving through the crossing.

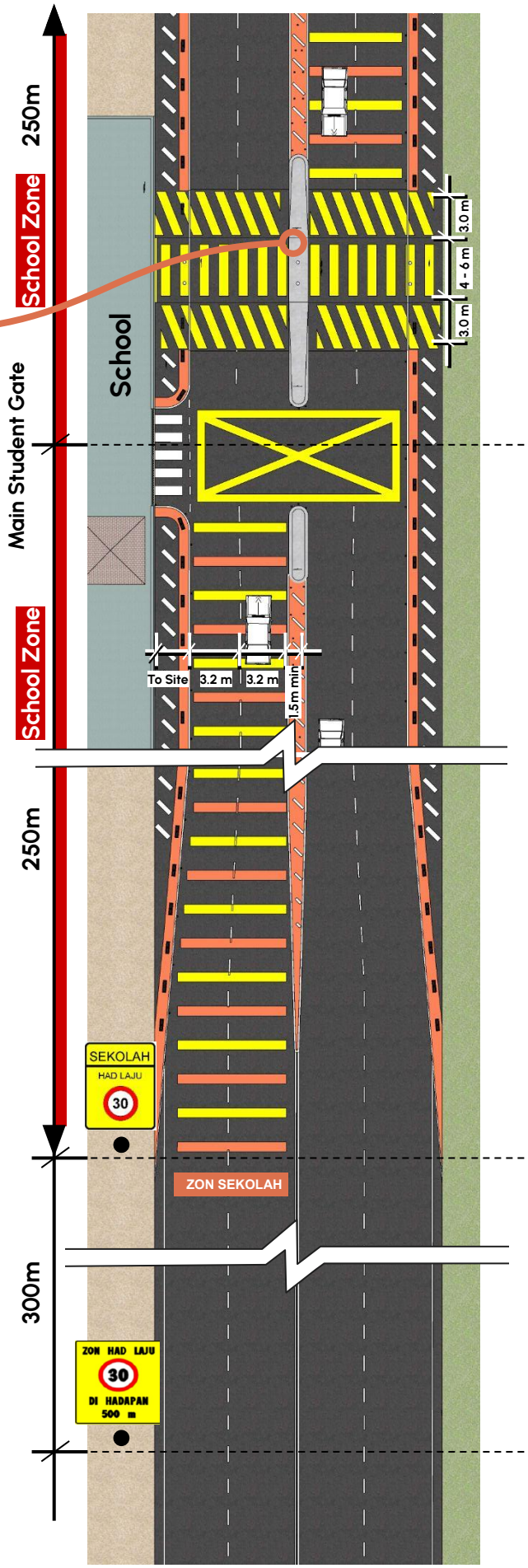
An example of a pedestrian refuge island providing safer protected space for children to wait while crossing the road, while increasing visibility and awareness.

An example of pedestrian refuge islands on how they act to narrow the street, reduce speeds and increase driver awareness on a wide road with added features such as bollards and signage.

Evidence Based Speed Reduction Measures

3. Median or Pedestrian Refuge Island





How this is done :

1. Refuge island to be built with a **1.5m width**
2. Install a minimum of **two metal bollards** for protection with the recommended clearance width of 1.2m apart minimum, with 10 flexible poles on each side of the island.
3. Apply 250m of road buffer material (e.g. thermoplastic) to separate the lanes on each side of the island, (total length: 500m)

Pedestrian Refuge Island with metal bollards

Flexible Poles

This component is aligned with the specifications in JKR national documents and guidelines.

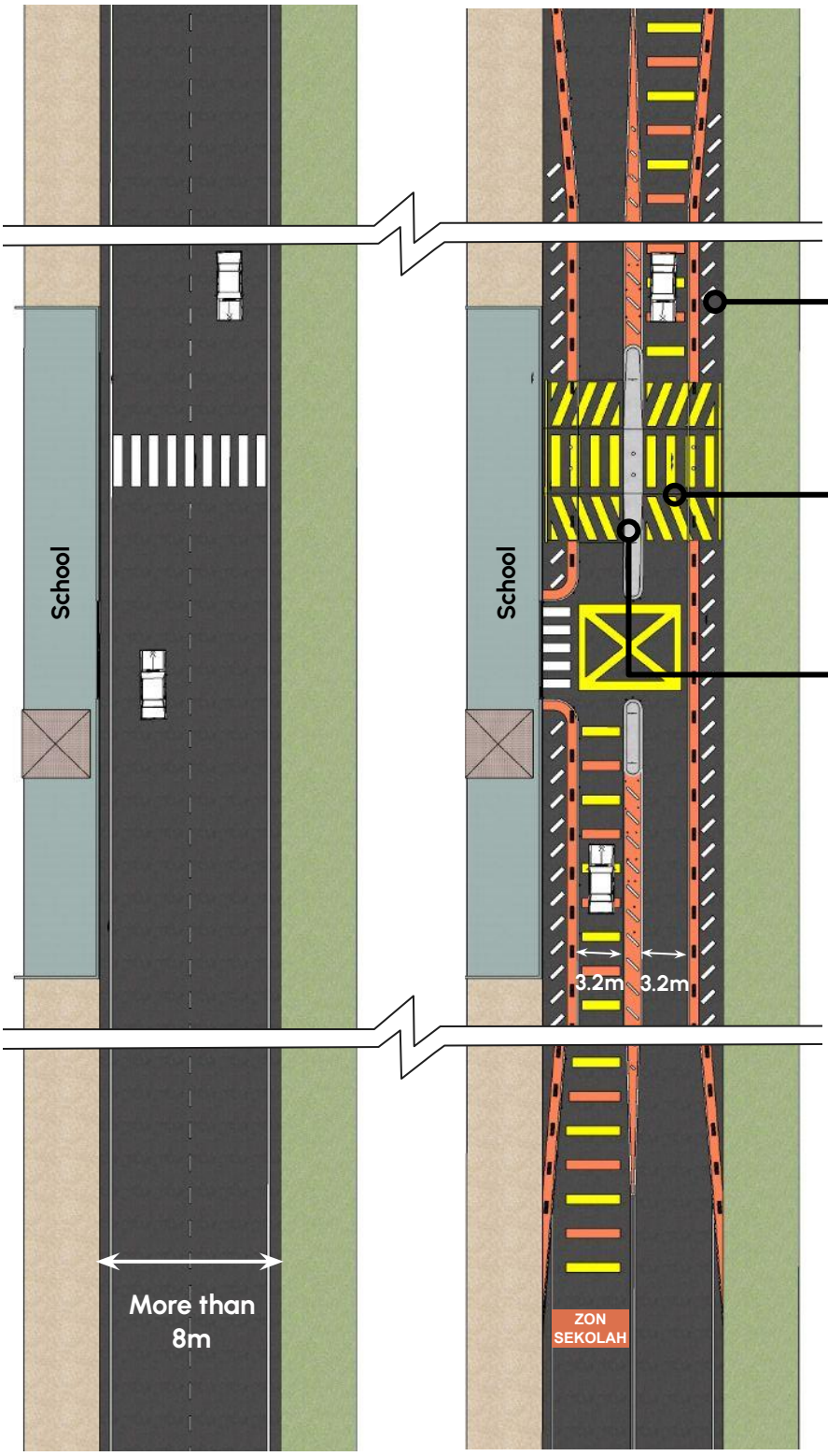
Section 3

Guideline in Practice and Case Studies

This section illustrates a practical guide for implementing the speed reduction measures detailed in Section 2 across roads of different widths and lane configurations.

Toolkit in Practice

Evidence Based Speed Reduction Measures on Multi-Lane Roads on 2 Lane Roads (Bi-direction)



Before

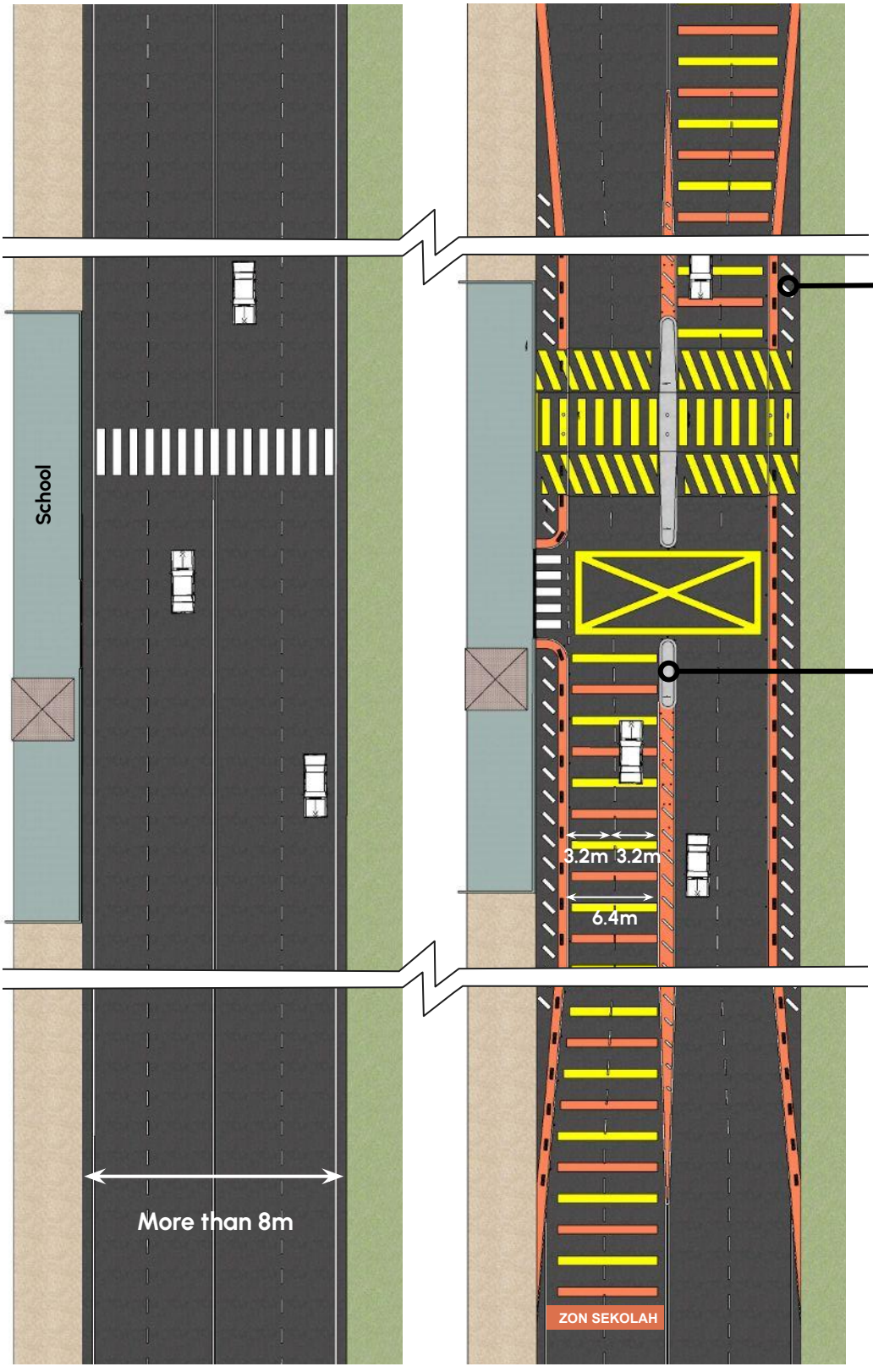
After

This diagram demonstrates the toolkit in practice for a single carriageway 2 lane road, with a road with wider than 8m.

1. Lane Narrowing and Pedestrian Separation
2. Raised Pedestrian Crossing
3. Median or Pedestrian Refuge Island

Toolkit in Practice

Evidence Based Speed Reduction Measures on Multi-Lane Roads (more than 2 lanes)



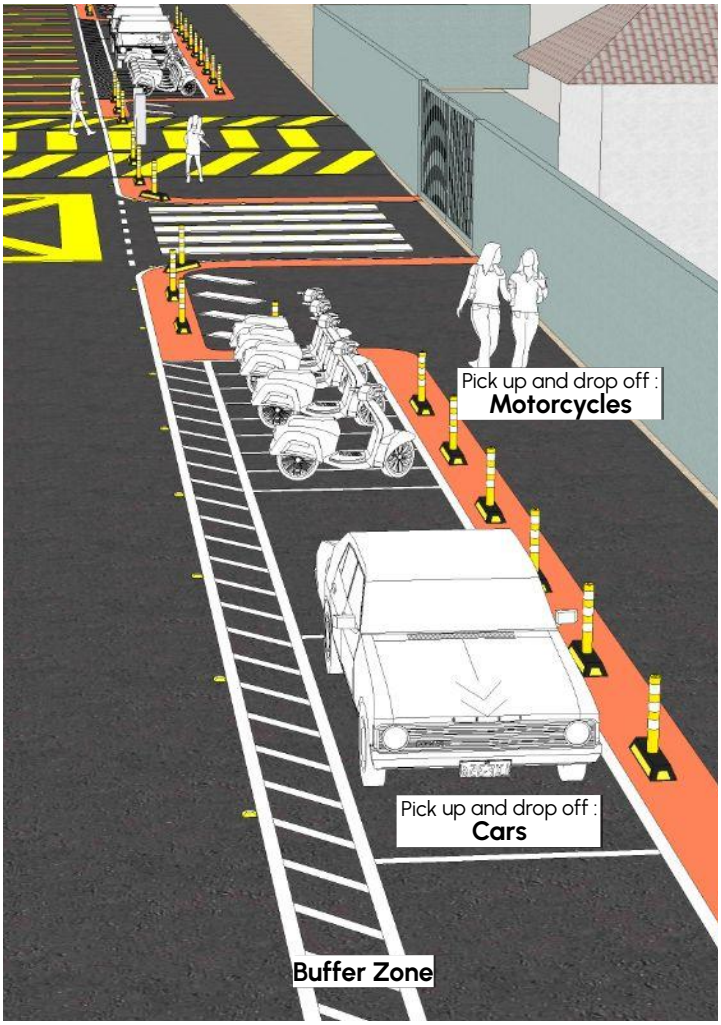
Before

After

This diagram demonstrates the toolkit in practice for a Multi-lane road that is more than 2 lane, with a road width wider than 8m.

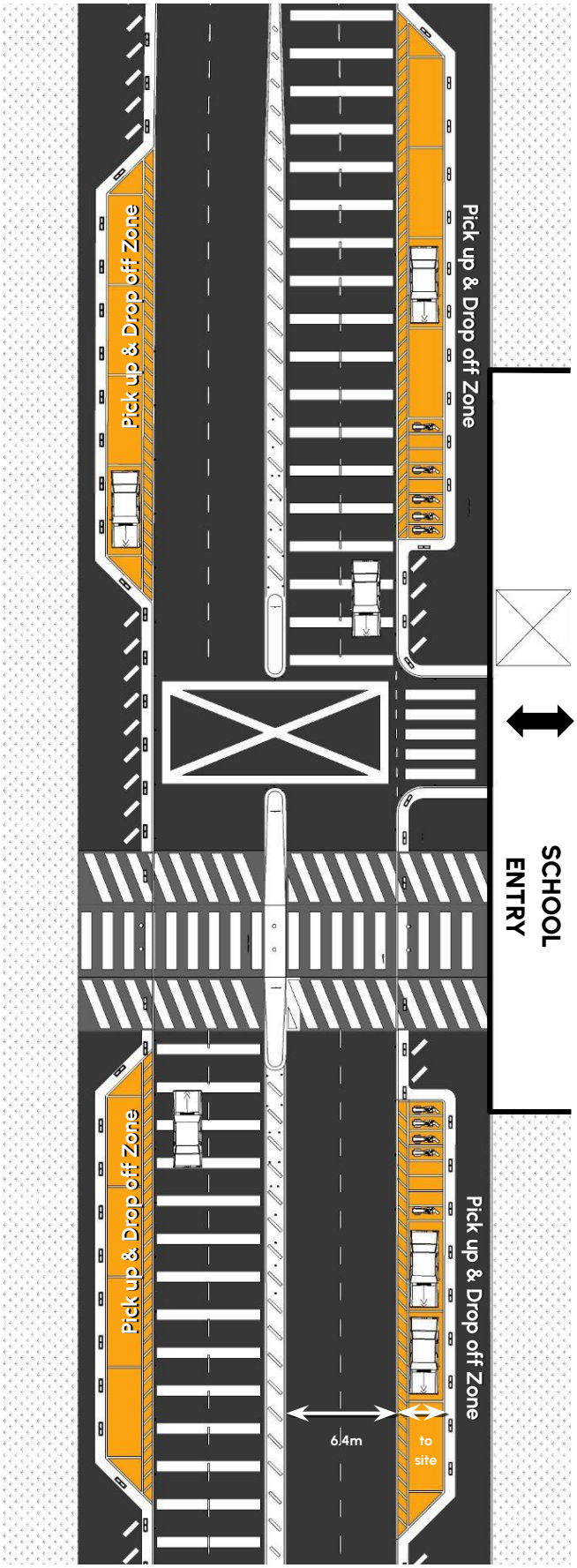
1. **Lane Narrowing and Pedestrian Separation**
2. **Raised Pedestrian Crossing**
3. **Median or Pedestrian Refuge Island**

Toolkit in Practice: Example of Pick-up and Drop-off Areas



The safer school zone toolkit can be adapted to suit the needs of existing school streets, with safe pick-up and drop-off areas for students if required, when necessary.

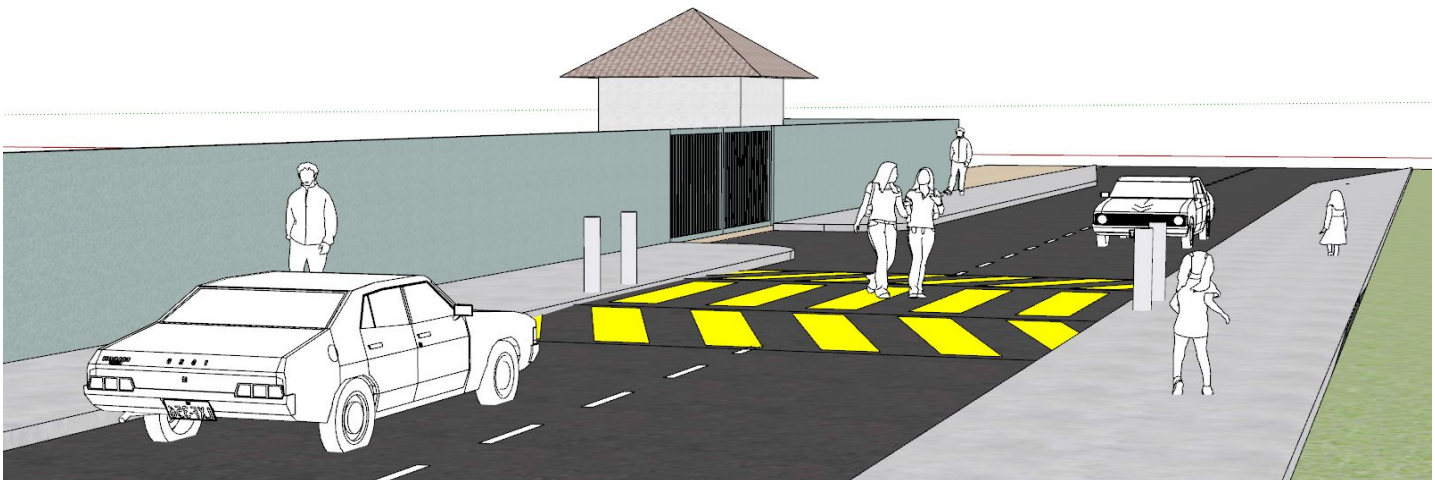
This diagram shows an example of how this can be achieved within the narrowed lane areas, whilst maintaining pedestrian separation. In addition, the raised pedestrian crossing creates a safe pick-up and drop-off zone on both sides of the street.



Toolkit in Practice : Safer Pedestrian Separation (further guidance)

The evidence based speed reduction measures includes a minimum requirement of 60 lane blocks with flexible poles for pedestrian separation. If a larger budget allowance is available, a **concrete pavement** can be considered to enhance the safety of pedestrians.

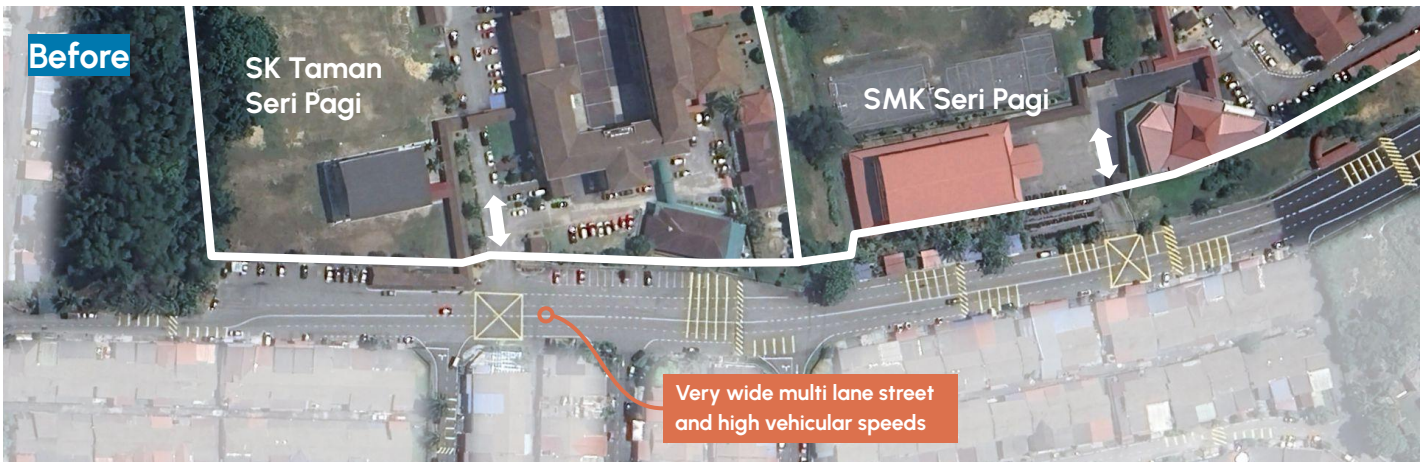
Evidence Based Speed Reduction Measures - Lane block with flexible poles

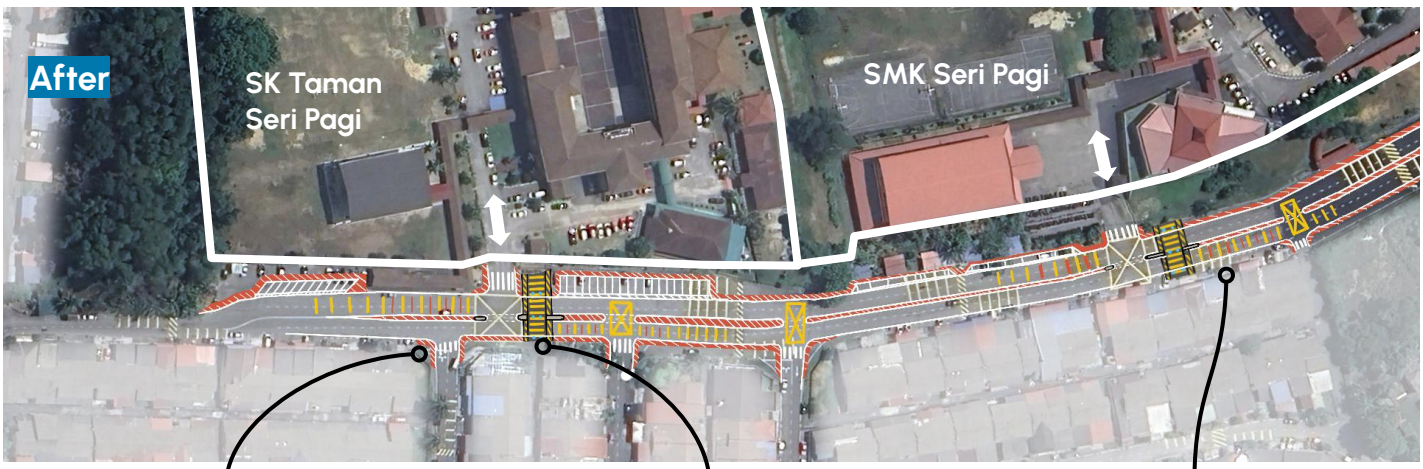


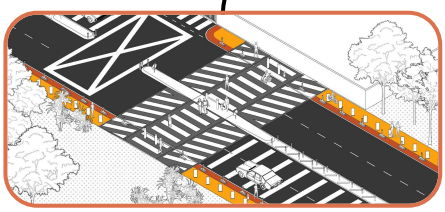
Larger Budget Allowance - Concrete pavement as protected separation

Case Study 1

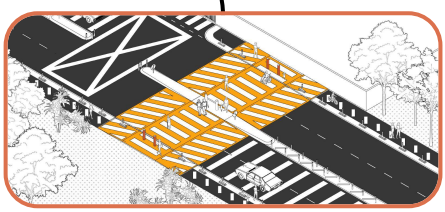
SK Taman Seri Pagi, Negeri Sembilan



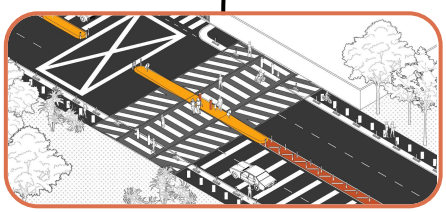




1. Road Narrowing and Pedestrian Separation



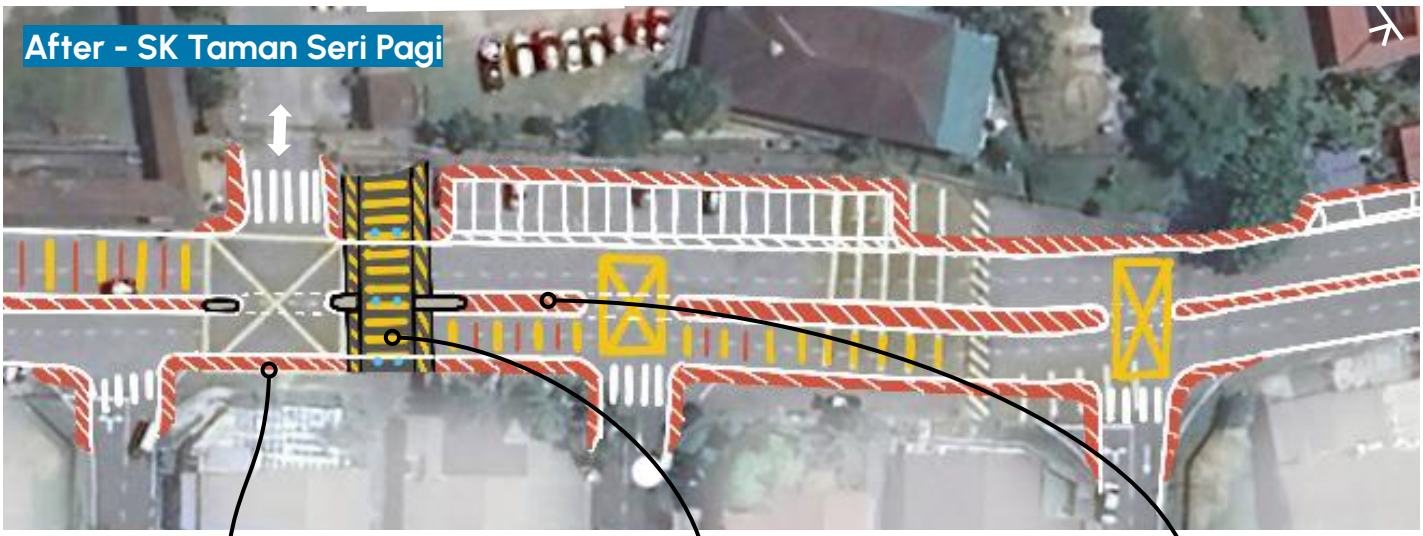
2. Raised Pedestrian Crossing

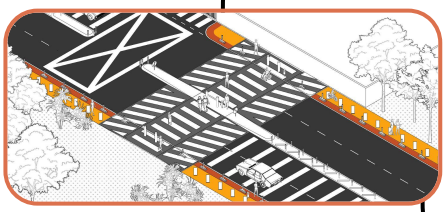


3. Median

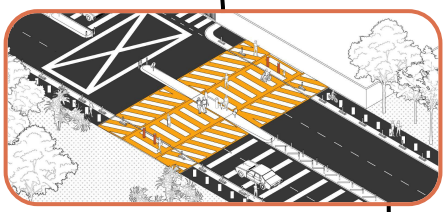
Case Study 1

SK Taman Seri Pagi, Negeri Sembilan

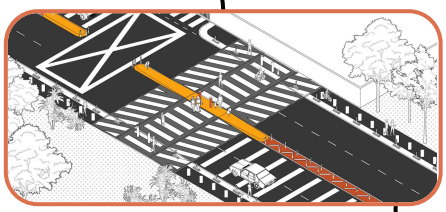




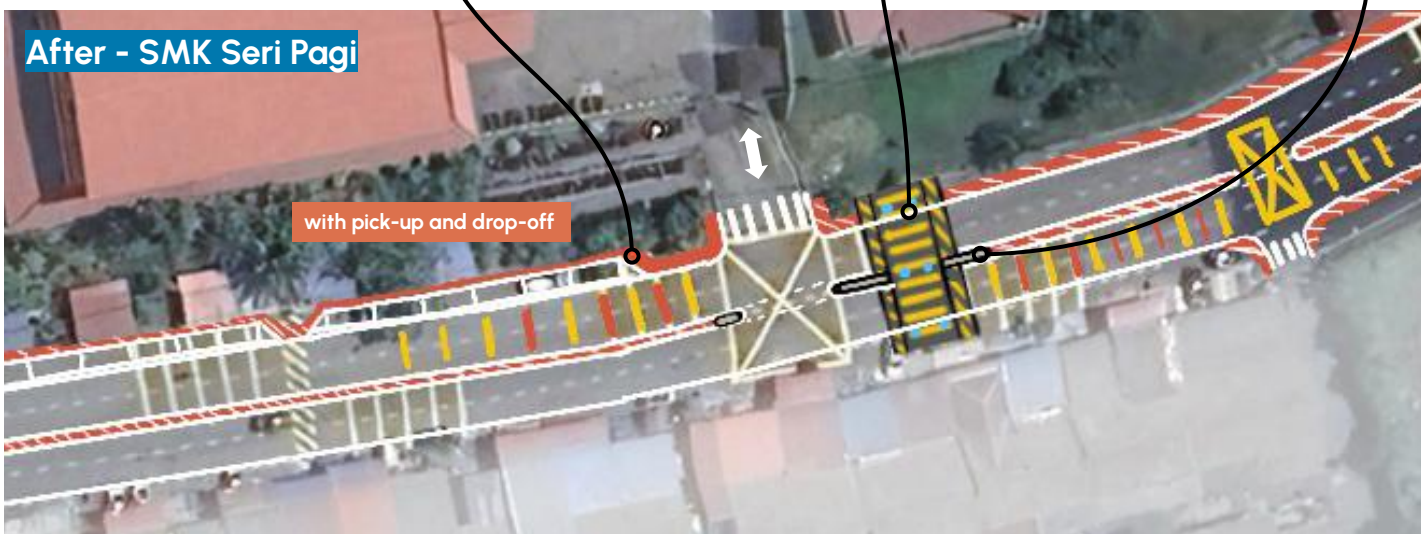
1. Road Narrowing and Pedestrian Separation



2. Raised Pedestrian Crossing



3. Median



The combination of evidence based speed reduction measures can potentially reduce vehicle speeds and provide safer child pedestrian access. The example also shows how the school's wide streets can be narrowed using lane narrowing and refuge islands. Pick up and drop off is also provided in this example at SMK Seri Pagi.

Case Study 2

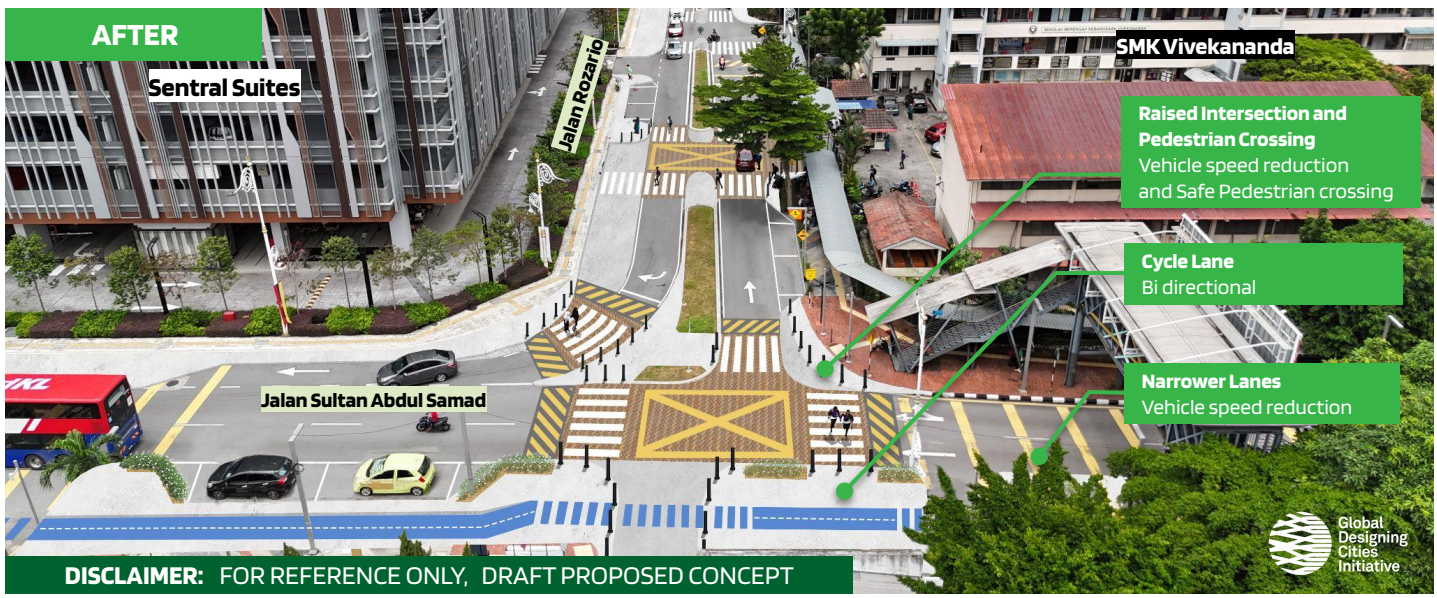
SMK Vivekananda and SJK (T) Vivekananda, Brickfields

As part of Kuala Lumpur City Hall's (DBKL) Safer School Streets Project, Brickfields has been selected as an implementation site for 2025 due to a recorded crash fatality and high vehicular speeds exceeding the school zone limit. The project is aimed at improving safety and accessibility for students, pedestrians, cyclists, and people with disabilities.

Planned Speed Reduction Measures include:

- **Raised pedestrian intersection:** to slow vehicles, improve visibility and pedestrian access at crossings.
- **Lane narrowing:** to encourage more orderly driver behaviour and reduce speeds
- **Upgraded pedestrian refuge island:** to provide a safer waiting area for crossing pedestrians.

This safer school streets project is by DBKL supported by the Global Designing Cities Initiative (GDCI).



Section 4

Reference Documents and Other Visual Requirements

This section outlines the minimum visual requirements that streets around schools must meet to implement the speed reduction measures detailed in Section 2.

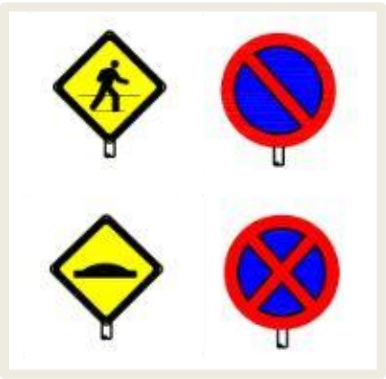
Other Visual Requirements

A school zone must have the following components to support the speed reduction measures detailed in Section 2.

It is strongly recommended that the local authority to work with other relevant authorities to ensure the components are in place **before** considering the speed reduction measures.

	Street Elements
3.1	Signage - 30km/h speed limit
3.2	Signage - Others
3.3	Transverse Bars
3.4	Road Marking
3.5	Other Visual Requirements as needed.

3.1 Signage - 30km/h School Speed Limit



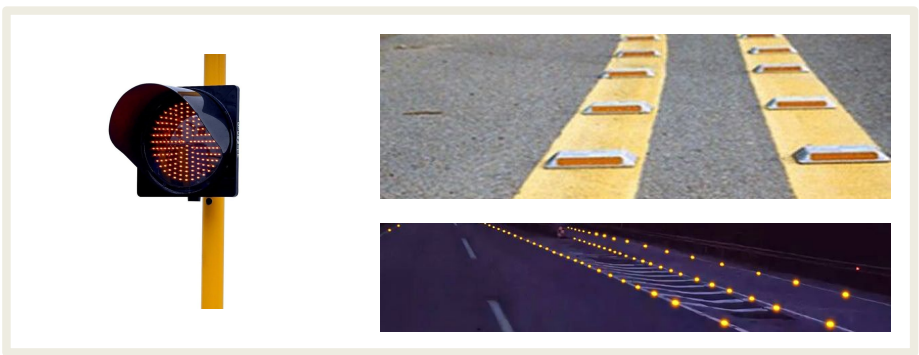
3.2 Signage - Others

Please see ATJ 2B/85 - Traffic Sign Application.

3.3 Transverse Bar (Yellow and Red)

3.4 Road Marking

Please see NTJ 30, ATJ 2D/85 and ATJ marking manuals



3.5 Additional Visual Requirements

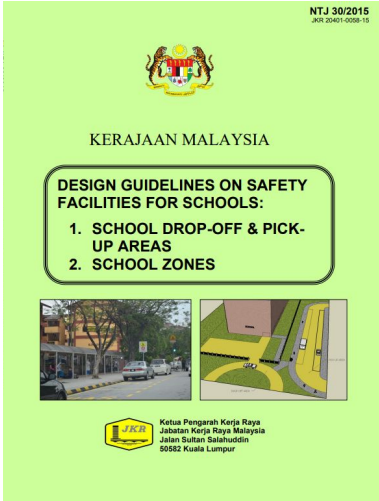
E.g.: Reflective Road Studs, Blinkers, Amber Lights

Please see NTJ 30/2015

For detailed and more comprehensive specifications, please refer to the relevant and most updated JKR national documents and guidelines.

Reference Excerpt from:
NTJ 30/2015: Design Guidelines on Safety Facilities for Schools

Designation of a School Zone : Speed Limit and School Zone



1.3.3. Speed Limit Sign for School Zone

Speed Limit sign for school zone is a safe speed limit that is preferable for drivers traveling through the school zone. An advisory or a mandatory speed limit of 30 km/h

PART THREE: DESIGNATION OF SCHOOL ZONE

3.1. General Consideration

The length of a school zone may range between 200 - 500 m

(Source:, *NTJ 30/2015, Pg 17*)

The Importance of a 30km/h School Zone Speed Limit

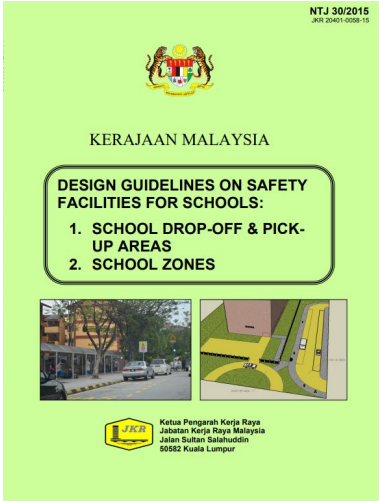
The Safer School Zone Speed Reduction Toolkit emphasizes speed reduction measures in line with the 30 km/h speed limit outlined in NTJ 30/2015. The NTJ highlight the critical importance of this limit:

*Studies have shown that a pedestrian will have a **90% chance of surviving car crash at 30 km/h or below**, but less than 50% chance of surviving impacts at 45 km/h or above. The probability of a pedestrian being killed rises by a factor of eight as the impact speed of the car increases from 30 km/h to 50 km/h.*

Hence, assigning a section of the road fronting a school is one way to inform drivers to be alert and take due care when driving through. With an advisory or a mandatory speed limit of 30 km/h, the slow speed on the school zone area provides more reaction time to unexpected child actions. Any collision at a lower speed will generally cause less injury. The fatality rate for pedestrians or bicyclists struck by a vehicle at higher speeds is much greater than that at lower speeds.

Reference Excerpt from:
NTJ 30/2015: Design Guidelines on Safety Facilities for Schools

Typical School Zone Layout for Two-Lane and Multi-Lane Roads



NTJ 30/2015 excerpt on the need for a physical median on Multilane roads:

Road divider / Physical Median:

*For **multilane road** fronting SDOPA, physical median may be necessary in managing and controlling the movement of traffic. **Median can be be used as a safe refuge area** for pedestrian / school children while crossing the Road.*
(Pg 32 - NTJ 30/2015)

Two Lane Roads

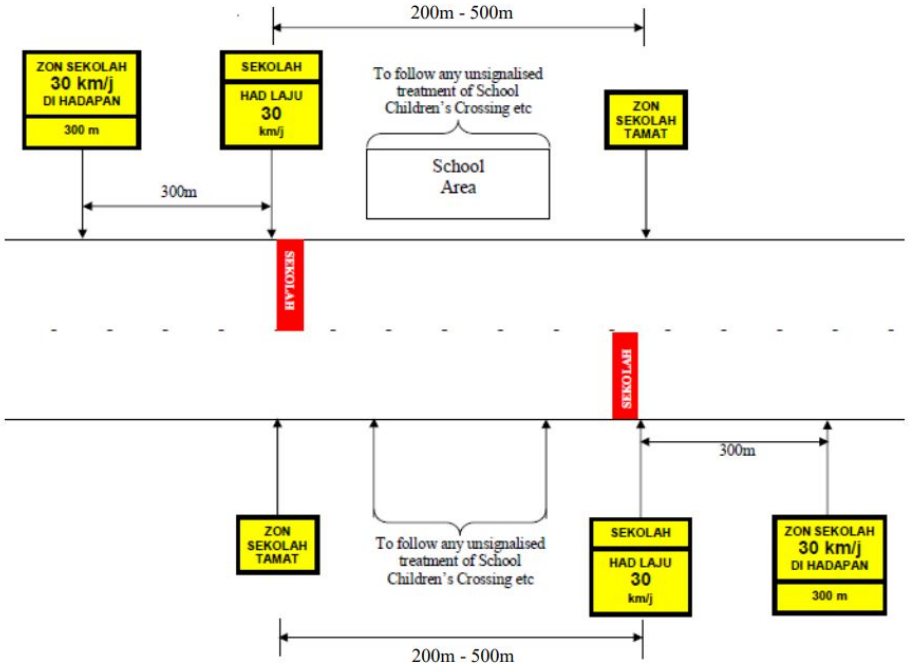


Figure A.1: Typical School Zone on Two Lane Roads

Multilane Roads

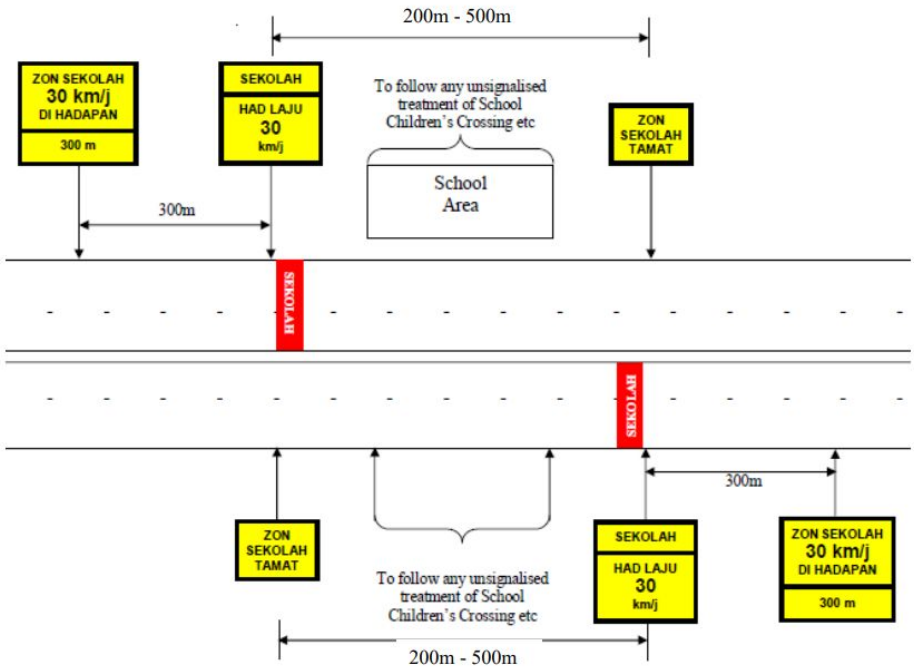
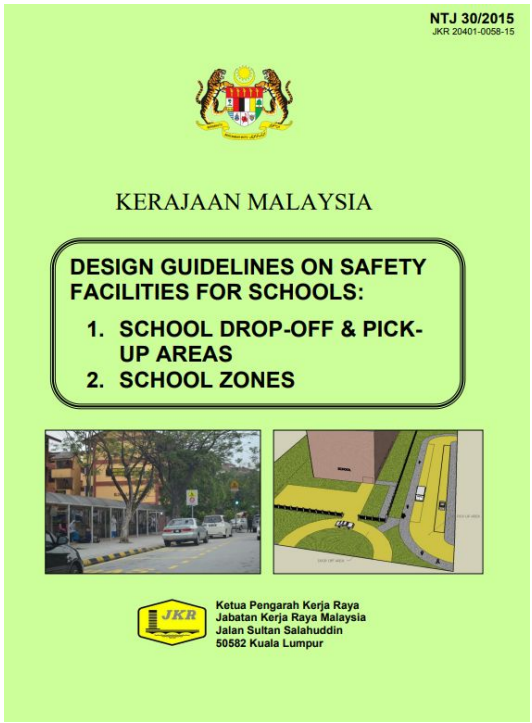


Figure A.2: Typical School Zone on Multi Lane Roads

(Image Source:, *NTJ 30/2015, Appendix A*)

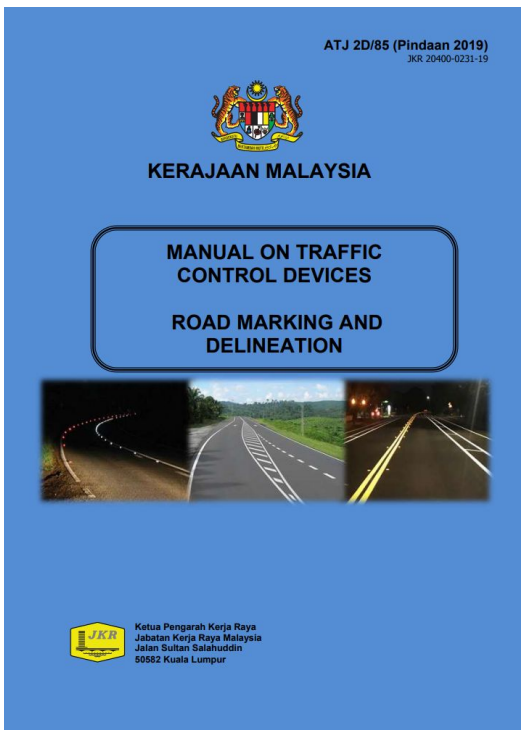
Relevant Arahan Teknik Jalan (ATJ) and Nota Teknik Jalan (NTJ) References:



NTJ 30/2015
Design Guidelines on Safety Facilities for Schools

ATJ 2A/85
Manual on Traffic Control Devices: Standard Traffic Signs

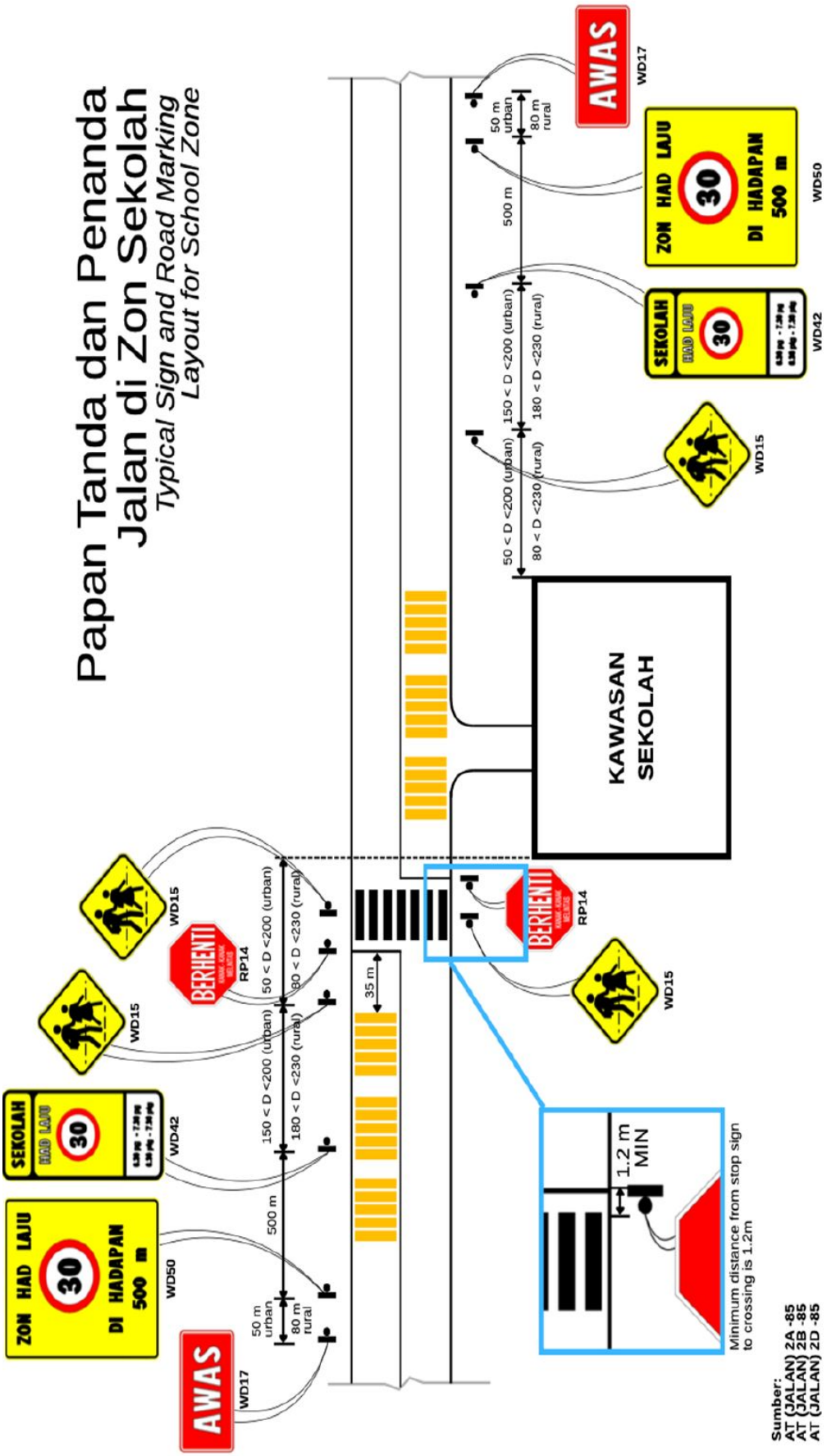
ATJ 2B/85
Manual on Traffic Control Devices: Standard Traffic Signs Application



ATJ 2D/85
Manual on Traffic Control Devices: Road Marking and Delineation

School Zone - Typical Sign and Road Marking Layout Drawing

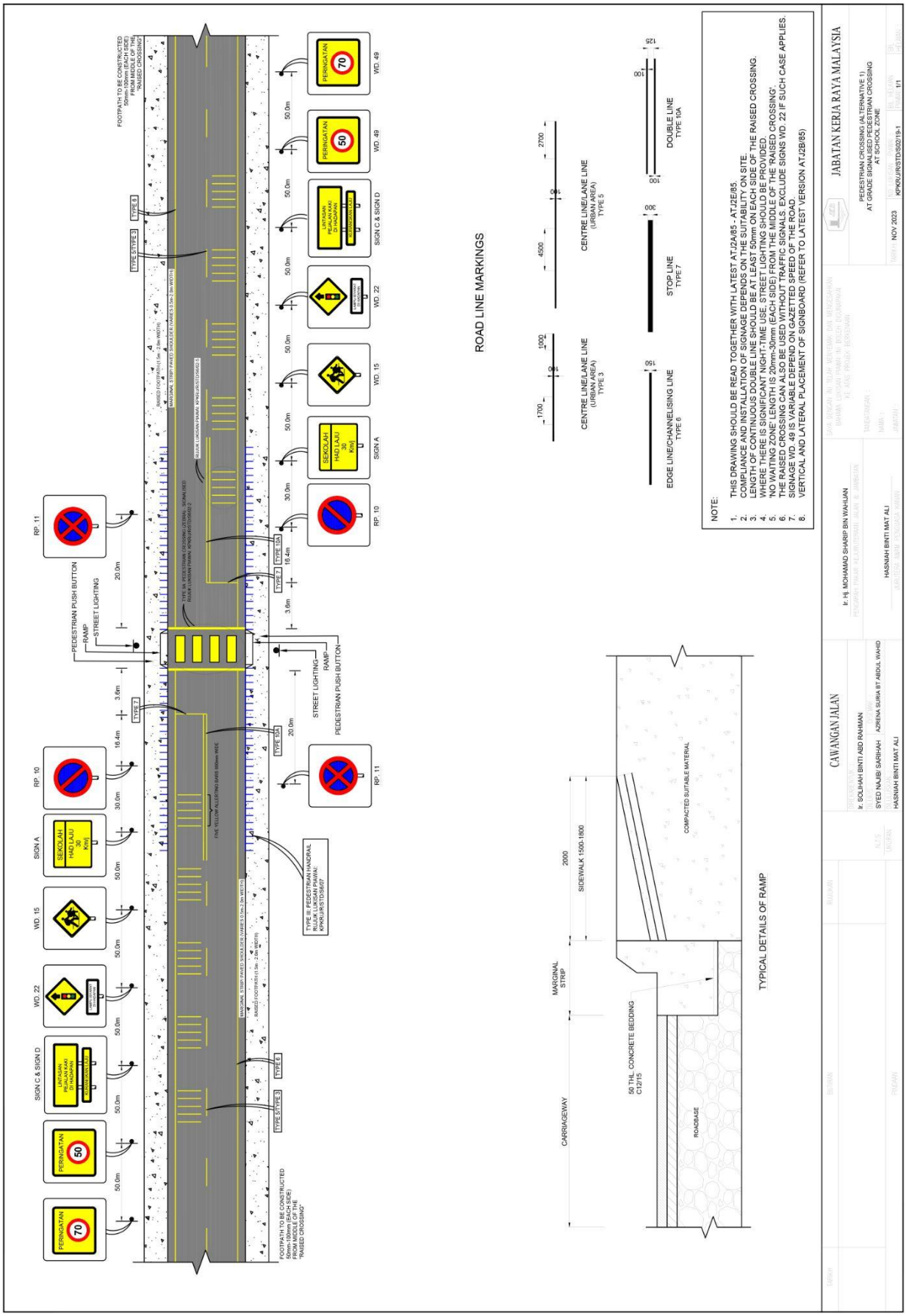
Reference of: ATJ 2A-85 | ATJ 2B-85 | ATJ 2D-85



d Crossing)

JKR Cawangan Jalan Drawing

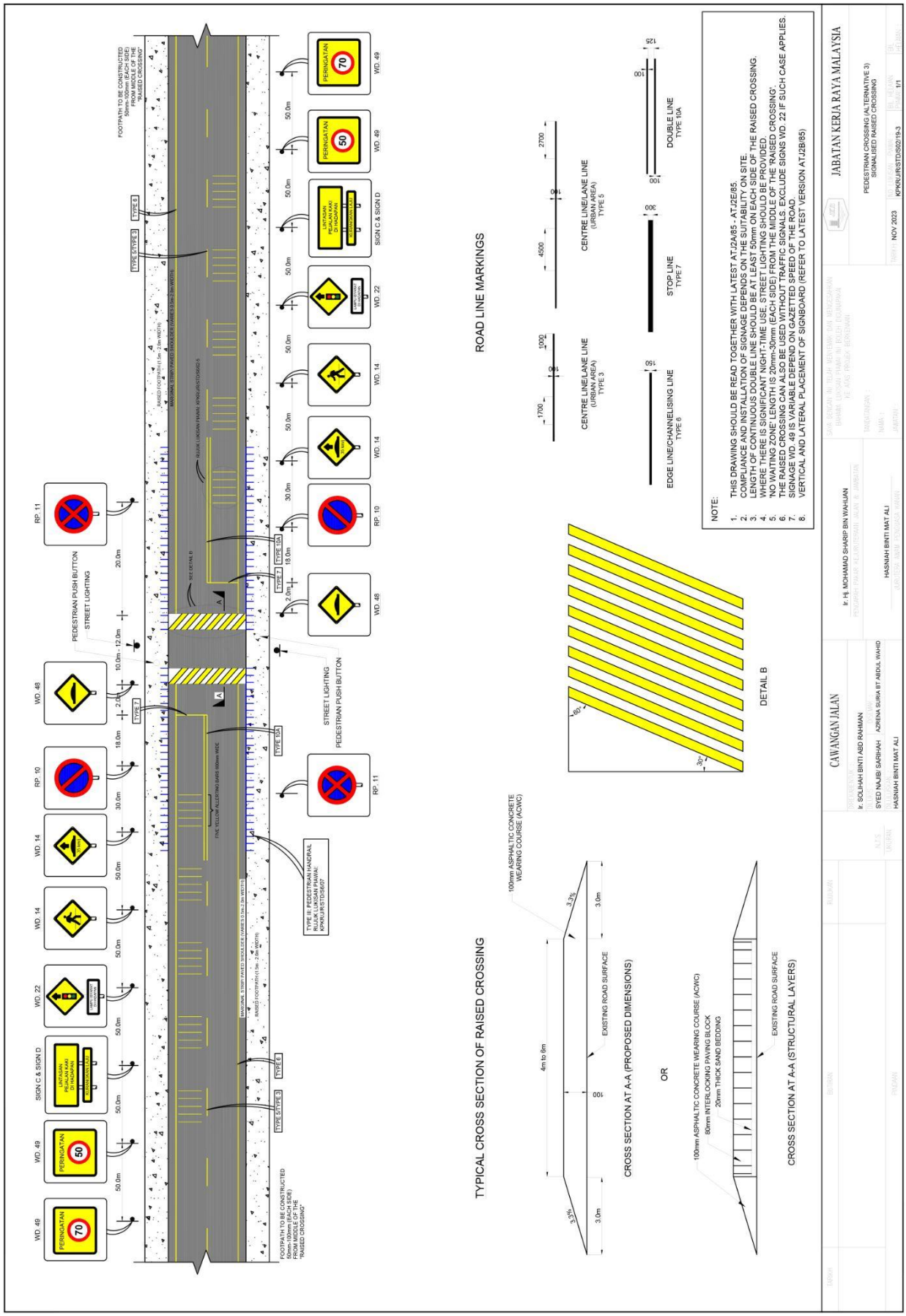
At Grade Signalized Pedestrian Crossing at School Zone



JKR Cawangan Jalan Drawing

Pedestrian Crossing - Raised Crossing

Crossing)



Section 5

Acknowledgements

Acknowledgement

The Malaysian Road Safety Council (MKJR) sincerely extends its deepest appreciation to all parties involved in this project. The success of this initiative reflects the collective effort, commitment, and shared vision for safer school in Malaysia.

MINISTRY OF WORKS

MINISTRY OF HOUSING AND LOCAL GOVERNMENT

MINISTRY OF EDUCATION

MINISTRY OF TRANSPORT
MALAYSIA