



# Rapid Build SRTS Front of School Improvements Advice Note

July 2023

# Document Control Sheet

Document Type:	Advice Note
Document Title:	Rapid Build SRTS Front of School Improvements Advice Note
Document No:	ATAN-2023-02

Pages:	30	Appendices:	0

Rev.	Status	Date	Author	Reviewed By	Approved By
1		11/07/2023	MB/Fo'D	JS	

## Key Points

1. This document is to be read in combination with the [NTA Safe Routes to School Design Guide](#) and the [NTA Rapid Build Active Travel Facilities Advice Note](#);
2. Cost Effective Rapid Build construction approaches, including road space reallocation and the introduction of school streets, are now required to be the primary options considered in new Safe Routes to School infrastructure; and
3. Such approaches have been shown to produce high quality results as outlined in the many Irish Case Studies in this document and the NTA Rapid Build Active Travel Facilities Advice Note.

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## 1. Introduction

The Safe Routes to School (SRTS) Programme was developed in partnership by the NTA and Green-Schools, An Taisce, in 2020 as a response to the need to support schools to increase walking and cycling to school. The aims of the Programme:

1. Improve safety at the school gate by providing ‘front of school’ treatments to alleviate congestion and improve access for those walking and cycling;
2. Improve access routes to school by improving walking and cycling infrastructure; and
3. Increase the number of students who cycle to school by expanding the amount of cycle parking

The videos below demonstrate the positive impact of the SRTS programme in promoting safer and more active transportation options for students:

- [St Philip the Apostle Junior & Senior National Schools](#), Blanchardstown, Fingal County Council
- [An Mhodscoil \(The Model School\)](#), Limerick, Limerick City and County Council

The [NTA Safe Routes to School Design Guide published](#) in 2021 provided technical guidance on designs to enable Local Authorities to create safer and calmer front of school environments, and more attractive routes to school.

There are 932 schools in the SRTS programme, and while work will be carried out with these schools sequentially, the impetus is on engaging with as many as possible as quickly as possible. At the same time the increase in construction costs in recent years, the targets set by the Climate Action Plan (500 School Zones and reduction of ‘school run’ journeys undertaken by private car by 30% by 2025) and the hierarchy of interventions specified by National Investment Framework for Transport in Ireland (NIFTI), have all led to a need to deliver SRTS infrastructure using rapid build, cost-effective methods both to maximise the amount of Safe Routes to School infrastructure delivered within available budgets and to increase the speed of delivery.

While the [NTA Rapid Build Active Travel Facilities Advice Note](#) deals with rapid build cost effective methods for active travel routes to schools, the focus of this advice note will be on cost effective ‘front of school’ interventions. The guiding principle is “**Doing More for Less**”. Further advice on ‘front of school’ environments for national high speed roads (80-100kph) and other regional and link high speed roads will be shared in due course.

## 2. Prioritising Rapid Build, Cost Effective ‘Front of School’ Environment

Vehicular traffic at the front of school during drop-off and pick-up times presents a safety hazard for school children and contributes to poor air quality. To achieve safer Front of Schools there is a need to discourage vehicle drop-offs and idling, hazardous vehicular manoeuvres and parking on footpaths, which have been identified as common occurrences outside schools.

**“Congestion at the school gates is another serious problem, with parents often double-parking, or parking on yellow lines to drop their children off. The result is incredibly dangerous”** (Chief Executive of the Road Safety Authority, 2019)

Dealing with the front of school environment is the principal expectation for schools in the SRTS programme and therefore for SRTS schemes. The delivery of the 'front of school' interventions highlighted in SRTS delivery plans for each school shall be prioritised.

Addressing barriers, such as adjacent pedestrian crossings, or key opportunities such as providing new permeability links and infrastructure improvements to connect potential Park'n'Stride locations to schools, may also be included in this initial 'front of school' phase. In general, routes to school works will follow as a further phase of the proposed works or addressed as part of separate active travel routes.

### 3. Rapid Build, Cost Effective 'School Zones' and 'School Streets'

A **School Zone** aims to create a safe protected area outside a school gate where vehicular drop off is discouraged. It builds on and supports the traditional, though often ignored, Zig-Zag markings. School zones use identifiable design features, such as pencil shaped bollards and colourful road markings to:

- Highlight the presence of the school and encourage traffic to slow down in the school zone area;
- Prevent parking on pavements; and
- Encourage drivers to make legal and safe drop-offs outside of the school zone area.

Generally set down areas are not recommended in a school zone unless there is no safe alternative area where cars can park safely with a footpath link to the school, including on the public road.

**School Streets** go a step further than school zones and involve generally prohibiting vehicular traffic (except for access) during drop-off and collection times. This intervention can have a significantly positive impact on walking and cycling and gives space for the local school community to use the street outside the school to gather / play / socialize. This intervention is increasing in popularity in other countries – 25% of all schools in London are now on a school street.

Both **School Zones** and **School Streets** can be supported by active promotion of 'Park and Stride' opportunities within a walkable distance from the school to reduce congestion around the school. Sites which are likely to be less busy during school start and finish times, such as churches, community centres, supermarkets and retail parks, often have large car parks with good availability during those times and are keen to support / attract their local community. The SRTS Infrastructure Officer and delivery plan assist in identifying Park'n'Stride locations.

### 4. Design principles for Rapid Build, Cost Effective 'School Zones' and 'School Streets'

To maximise the amount of Active Travel infrastructure delivered within available resources over the coming years and to increase the speed of delivery, the following approach will be applied to all NTA Active Travel schemes.

- Utilising road space reallocation of the existing carriageway should be the first option considered in developing active travel schemes. Full build "building line to building line" construction will be the exception rather than the default design;

- Resurfacing of the existing carriageway, other than the cycle lanes, shall not be the default position and will need to be justified. Full depth rebuild of carriageway will be by exception only;
- Schemes should seek to minimise changes to the drainage systems, through modifications to existing gullies and connections if needed. Major changes to drainage systems shall be avoided, although opportunities to provide rain gardens or other Sustainable Urban Drainage (SuDs) features should be considered; and
- Schemes should design around existing utilities where possible, only moving / re-orientating manholes where they conflict with kerbs.

## 5. Design features for Rapid Build, Cost Effective ‘School Zones’ and ‘School Streets’

### **Rapid Build Low Cost School Zone Design features may include:**

- Colorful Road markings – Given the need to reduce costs instead of buff high-friction surface for the entire school zone, a band of buff at the gateways and the coloured roundels (where traffic speeds and volumes are low) will be favoured as solution that offers clear school zone identification;
- Signage – Vertical elements such as the SRTS banners mounted on lampposts;
- Using the pencil shaped bollards or low cost buildouts to narrow traffic lanes in accordance with DMURS to reduce speeds and increase pedestrian space rather than new footpaths and new drainage;
- Where space allows and where it forms part of the cycle network, consideration could be given to using pencil shaped bollards / bolt down kerbing to create protected cycle lanes;
- Converting on-street parking to space for planting and / or congregation areas at the front of school environment;
- Relocation / removal of vehicle drop-off areas within the school zone area; and
- Raised formal or informal pedestrian crossing(s) and other traffic calming measures.

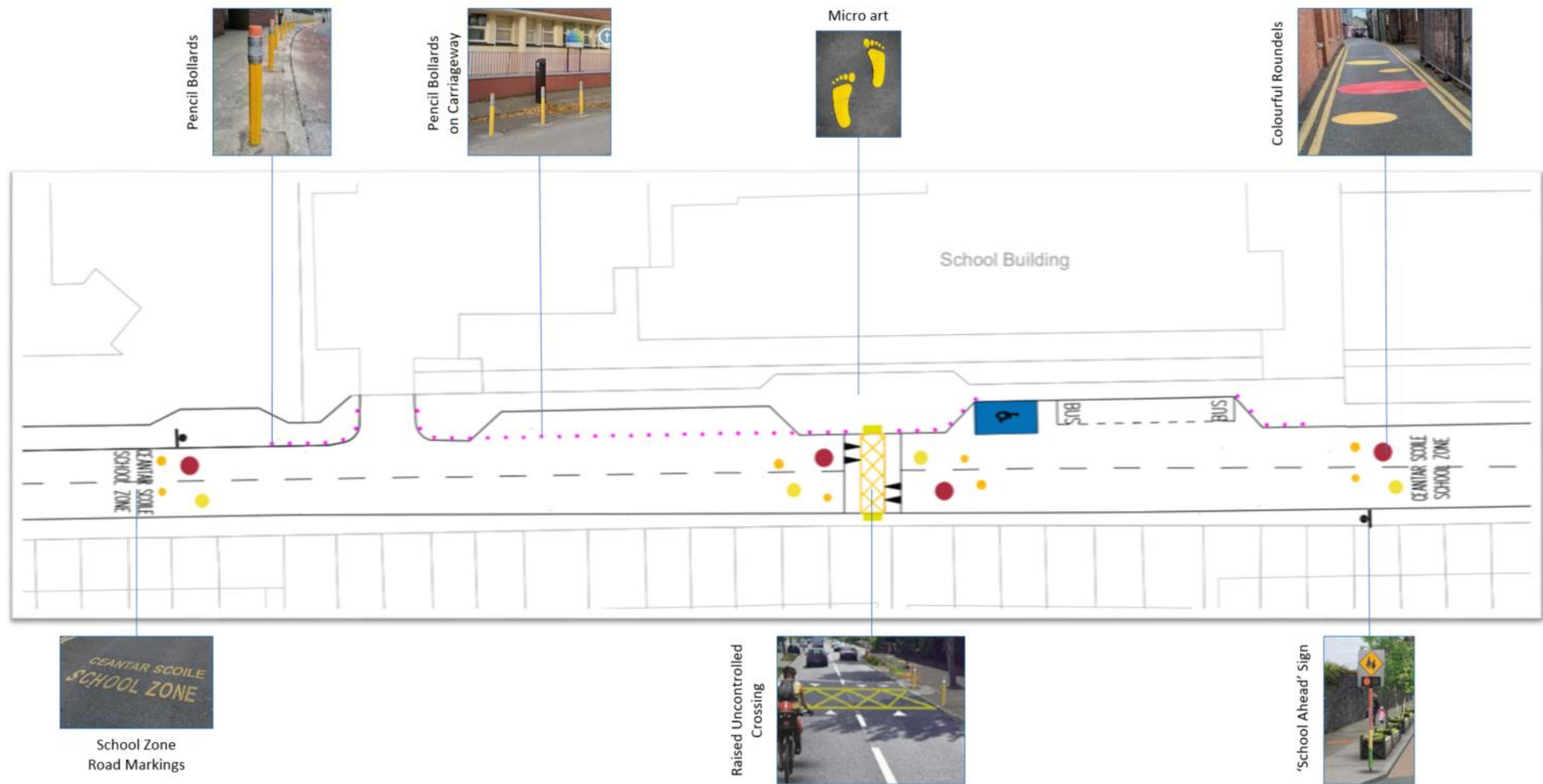
### **School Streets:**

- A school street is a highly cost effective intervention in terms of infrastructure, which can often just involve traffic restriction signage and associated orders;
- Movable / expandable barriers could be considered, in particular at initial stages;
- These schemes can be challenging to implement at a local level. Often a trial is a good idea to allow time for the local community, parents and other stakeholders to experience the school street in action; and
- Supporting measures may also include; identifying and promoting Park ‘n’ Stride locations; Upgrades to walking infrastructure; and Adjustments to traffic signal timings.

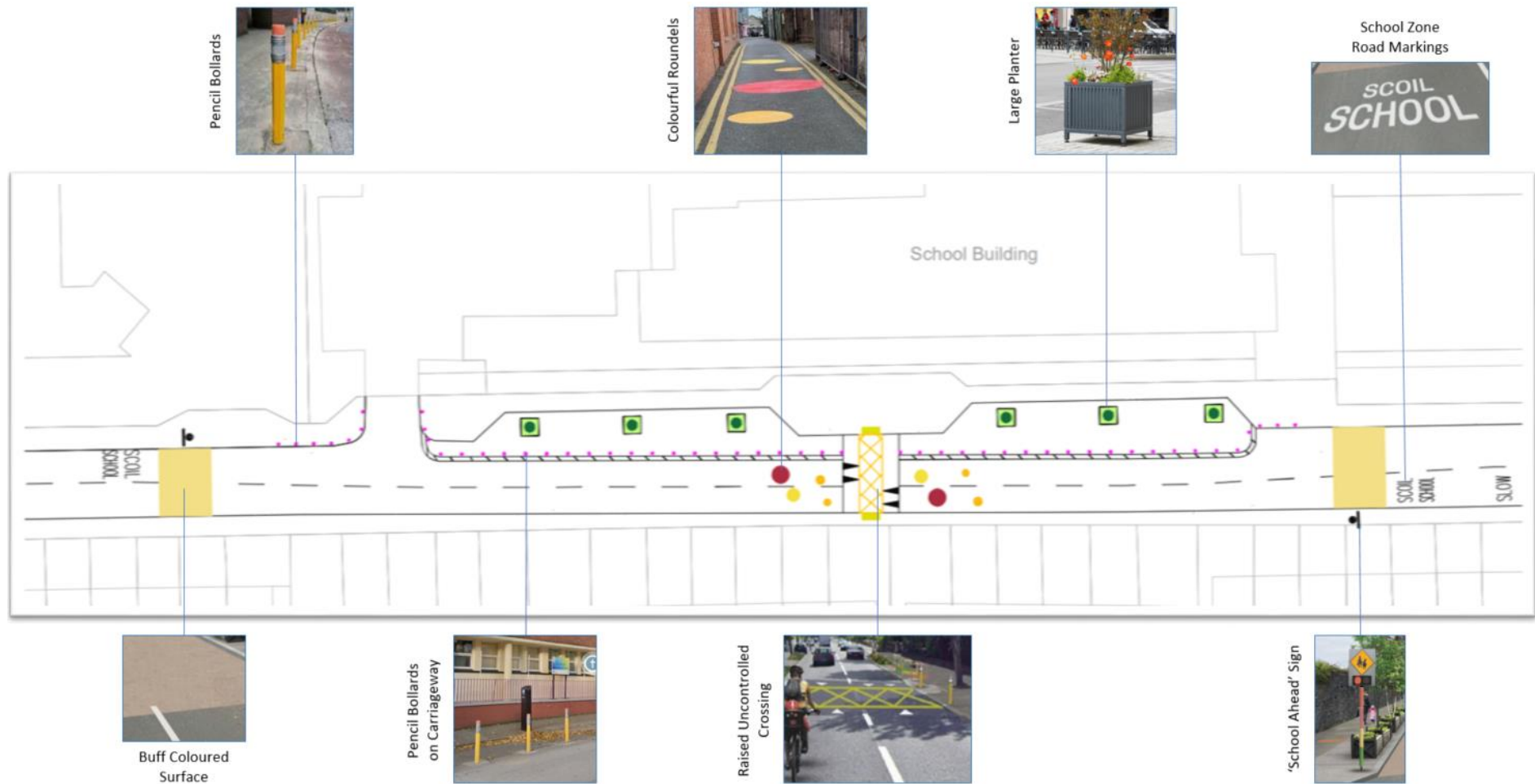
Section 6 below contains sample conceptual drawings to give an indication of possible intervention options for school zones. Many of the interventions could also be used on school streets, although not strictly necessary. Section 7 provides more detail on School Zone interventions, Section 8 on School Street interventions.

## 6. Sample Concept Quick Build School Zones

Example 1 – Low cost 'front of school' interventions. Conversion of existing set down to a congregation area, by use of pencil bollards, and provision of raised uncontrolled crossing. Introduction of accessible and bus parking, if required. Gateways to school zone highlighted with colourful roundels.

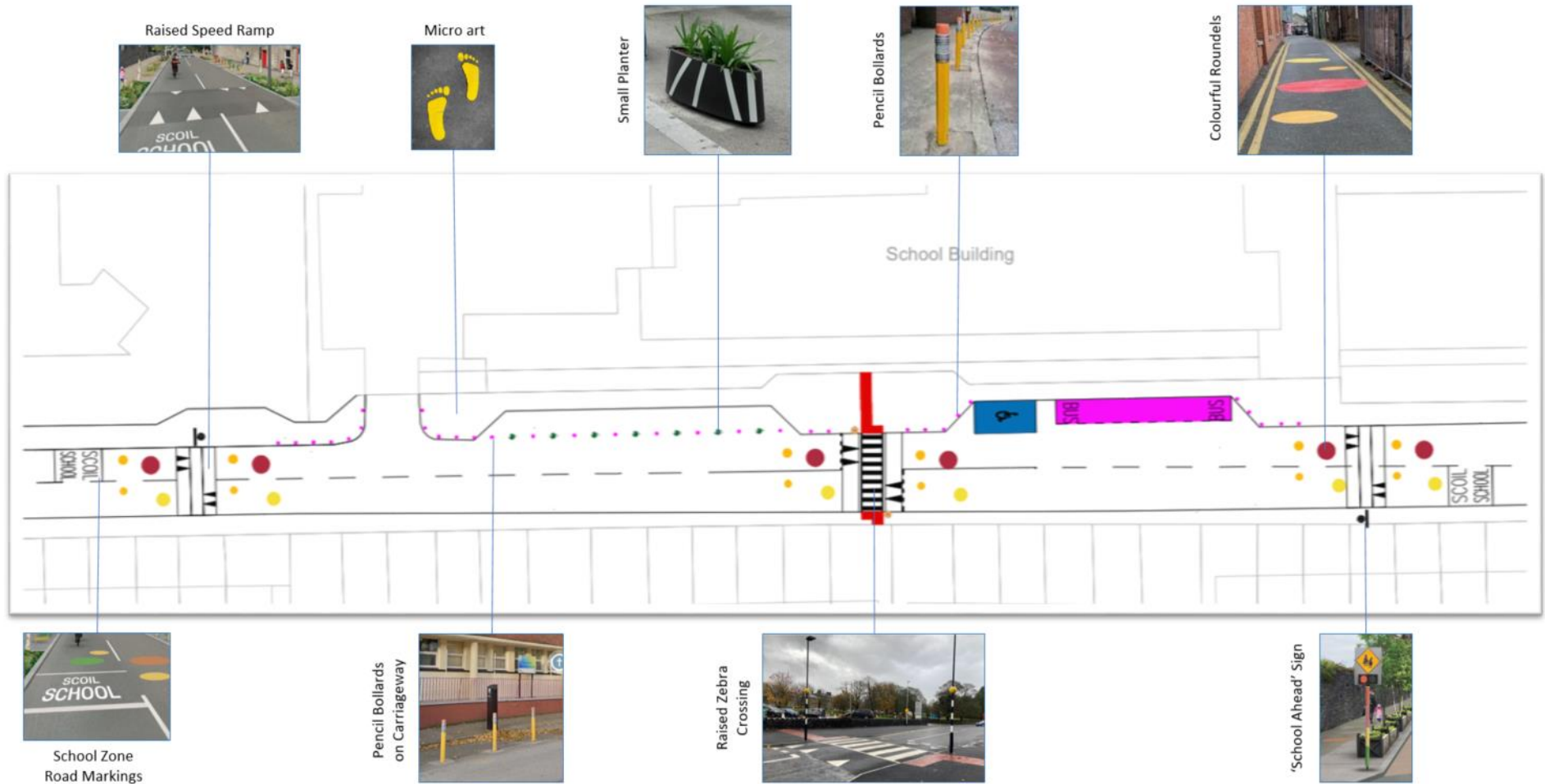


Example 2 – Road width reduction in accordance to DMURS by use of pencil bollards on the carriageway with added school zone identification and placemaking elements, such as colourful roundels on the carriageway and greening. Gateways to the school zone highlighted by introduction of buff coloured surface treatment.

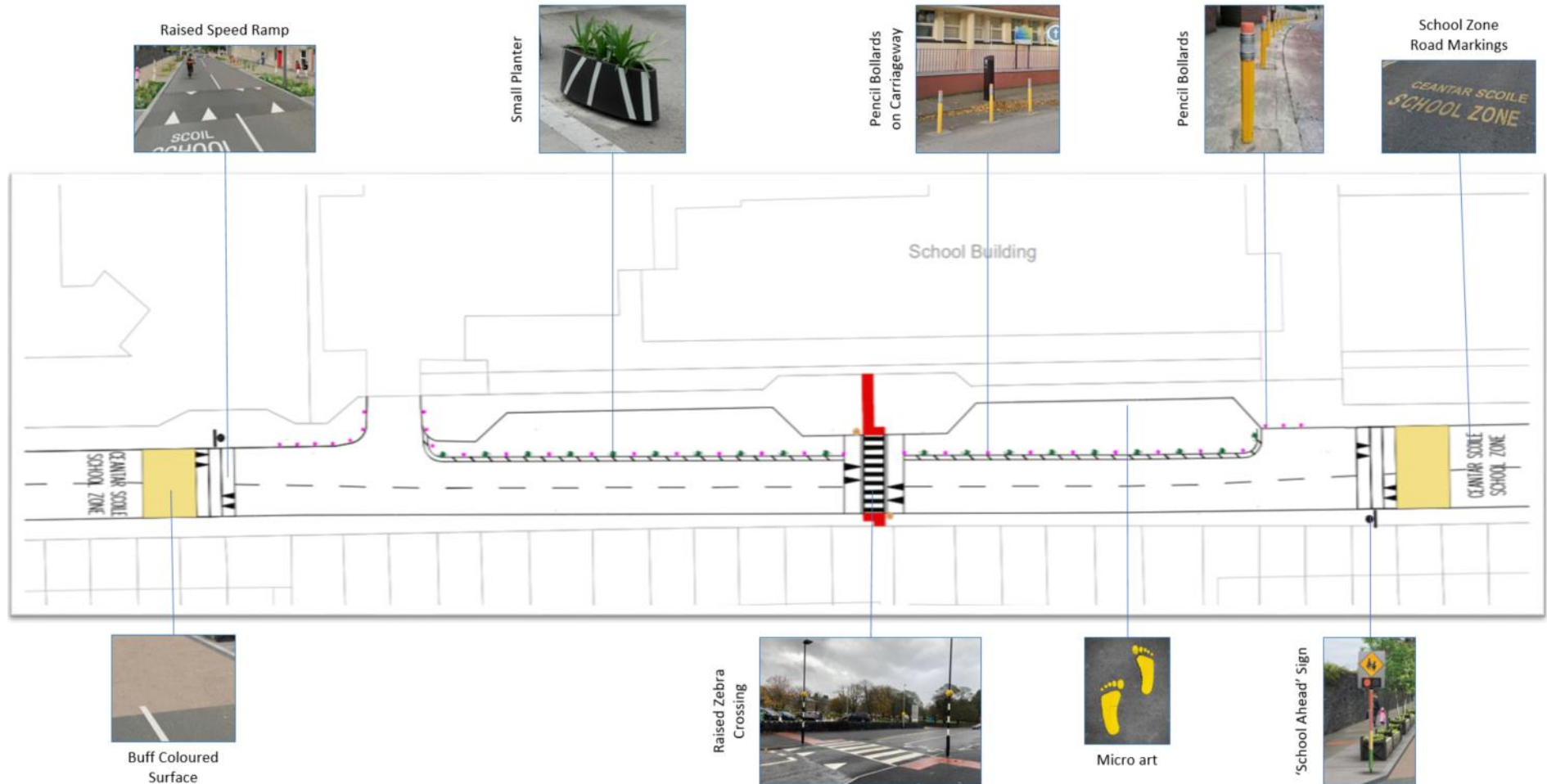




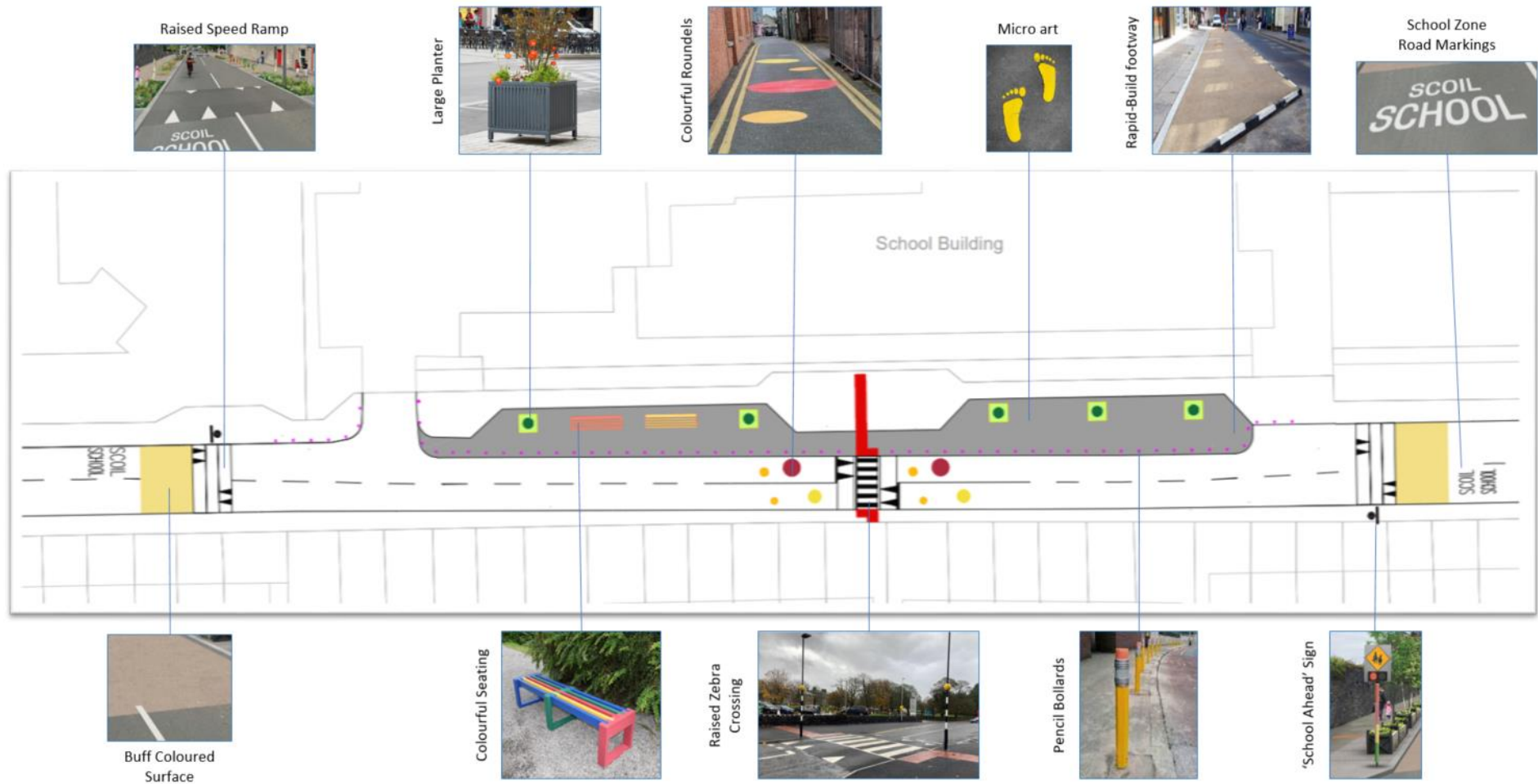
Example 3 – Conversion of existing set down to a congregation area by use of pencil bollards, small planters and other placemaking elements, such as micro art. Provision of raised gateways and zebra crossing for traffic calming within the school zone. Introduction of accessible and bus parking, if required.



Example 4 – Road width reduction by use of pencil bollards and small planters on the carriageway with added school zone identification and placemaking elements. Provision of raised gateways and zebra crossing for traffic calming within the school zone.







Example 5 – Road width reduction by introduction of rapid build footway (i.e. bolt-down kerbs and footway infill). Provision of raised gateways and zebra crossing for traffic calming effect. School zone identification is achieved by use of pencil bollards, planters and other colourful placemaking elements, such as micro art.




## 7. Indicative interventions for School Zones




In the tables below there are three levels of infrastructure intervention – Level 1: cheapest quickest measures, Level 2: more costly measures, and Level 3: full build redesign.

School Zone Measure	Level 1	Level 2	Level 3
<b>Gateway to School Zones <sup>1</sup></b>			
<b>Traffic calming</b>	Optional – bolt-down speed ramps/ chicanes.	Raised speed ramps.	Raised speed ramps.
	 <p data-bbox="600 938 860 960">©Google Street View 2022</p> <p data-bbox="600 1305 860 1327">Image (<a href="#">Rosehill Highways</a>)</p>		

School Zone Measure	Level 1	Level 2	Level 3
<b>Gateway to School Zones <sup>1</sup></b>			
<b>Identifying the area as a school zone</b>	Cluster of colourful roundels <sup>2</sup> 	<ul style="list-style-type: none"> <li>• Clusters of colourful roundels<sup>2</sup> on either side of raised feature, <u>OR</u></li> <li>• Buff coloured band 5-10m long at school zone entrance.</li> </ul>	<ul style="list-style-type: none"> <li>• Clusters of colourful roundels<sup>2</sup> on either side of raised feature, <u>OR</u></li> <li>• Buff coloured band 5-10m long at school zone entrance.</li> </ul>
<b>Road markings</b>	<ul style="list-style-type: none"> <li>• CEANTAR SCOILE/ SCHOOL ZONE <u>OR</u> SCOIL/ SCHOOL at gateway.</li> <li>• GO MALL / SLOW on approaches where speed is an issue.</li> </ul>		
<b>Signage</b>	'School Ahead' (W 141) signs, supplemented by Flashing Amber Signals (S 102) <sup>4</sup> at gateways on colourful posts. 	'School Ahead' (W 141) signs, supplemented by Flashing Amber Signals (S 102) <sup>4</sup> at gateways on posts with colourful post sleeves.	<ul style="list-style-type: none"> <li>• 'School Ahead' (W 141) signs, supplemented by Flashing Amber Signals (S 102) <sup>4</sup> at gateways on posts with colourful post sleeves, <u>AND/OR</u></li> <li>• Driver feedback signs<sup>3</sup>.</li> </ul>



School Zone Elements	Level 1	Level 2	Level 3
<b>Area between Gateways</b>			
<b>Main Crossing(s) in the School Zone</b>	Raised uncontrolled (incl. tactiles).	Raised zebra with solar-powered belisha beacons <u>OR</u> new zebra crossing sign when permitted.	<ul style="list-style-type: none"> <li>• Raised zebra with solar-powered belisha beacons <u>OR</u></li> <li>• Other controlled (e.g. non-solar powered zebra, signalised crossing, etc.).</li> </ul>
<b>Traffic Calming</b>	At least one raised feature / crossing within school zone.	At least one raised crossing and raised features at gateways.	At least one raised crossing and raised features at gateways.
<b>Parking Deterrent</b>	Pencil-shaped bollards for approx. 50m on either side of school entrance. 	<ul style="list-style-type: none"> <li>• Pencil-shaped bollards for approx. 50m on either side of school entrance.</li> <li>• Knee-high railing at green verges.</li> </ul>	<ul style="list-style-type: none"> <li>• Combination of pencil-shaped bollards / planters for approx. 50m on either side of school entrance.</li> <li>• Knee-high railing at green verges.</li> </ul>

School Zone Elements	Level 1	Level 2	Level 3
<h3>Area between Gateways</h3>			
Identifying the area as a school zone	<ul style="list-style-type: none"> <li>• Pencil-shaped bollards.</li> <li>• Clusters of colourful roundels at intervals within the school zone area<sup>2</sup>, <u>OR</u></li> <li>• Buff coloured band 5-10m long (high friction surface) on either side of crossing and elsewhere required.</li> </ul> <div data-bbox="855 488 1608 813" style="text-align: center;">  </div> <p data-bbox="1099 815 1361 839" style="text-align: center;"><i><a href="#">©Google Street View 2022</a></i></p>		
	<p>Increasing pedestrian/cyclist space and reduce road width using flexible pencil-shaped bollards and 0.5m wide buffer (white road markings).</p>	<p>Increasing pedestrian/cyclist space and reduce road width using flexible pencil-shaped bollards and 0.5m wide buffer (white road markings).</p>	<ul style="list-style-type: none"> <li>• Bolt down kerbs, backfilled footpath and ACO drains, <u>OR</u></li> <li>• Full build (concrete or tarmac) footpaths.</li> </ul>
Road Space Reallocation	<div data-bbox="528 999 1344 1362" style="text-align: center;">  </div> <p data-bbox="804 1364 1066 1388" style="text-align: center;"><i><a href="#">©Google Street View 2022</a></i></p>		<div data-bbox="1536 994 1966 1326" style="text-align: center;">  </div> <p data-bbox="1480 1345 2018 1369" style="text-align: center;"><i>St Anne St 2021 – Photo courtesy of Dublin City Council</i></p>

School Zone Elements	Level 1	Level 2	Level 3
<b>Area between Gateways</b>			
<b>Placemaking</b>	<ul style="list-style-type: none"> <li>• Planters.</li> <li>• Micro art.</li> <li>• Cycle Parking.</li> </ul>	<ul style="list-style-type: none"> <li>• Planters.</li> <li>• Micro art.</li> <li>• Murals.</li> <li>• Cycle Parking.</li> </ul>	<ul style="list-style-type: none"> <li>• Planters &amp; Greening.</li> <li>• Micro art.</li> <li>• Murals.</li> <li>• Cycle Parking.</li> <li>• Seating.</li> </ul>
<b>Carriageway</b>	As existing.	As existing.	<ul style="list-style-type: none"> <li>• Buff coloured band 5-10m long (high friction surface).</li> <li>• Localised resurfacing (only where justifiable).</li> </ul>

<sup>1</sup> Consider all approaches to school zone (junction arms, etc.)

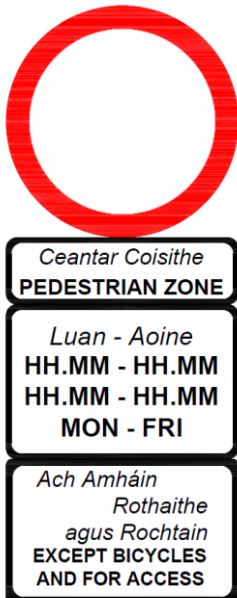
<sup>2</sup> Suitable for low speed (30kph or less) and low traffic volume roads. Preferred intervention for primary schools.




<sup>3</sup> Where excessive speeding at the approach to schools is of particular concern

<sup>4</sup> TSM Chapter 6 recommends that flashing amber signals are not erected within 100m of signals or pedestrian crossings where children may otherwise cross in safety.



## 8. Indicative interventions for School Streets

School Street Elements	Level 1	Level 2	Level 3
<b>Gateway to School Street <sup>1</sup></b>			
Signage	<p>'School Ahead' (W 141) signs &amp; 'Pedestrianised Street' (RUS 021) signs with 'Pedestrianised Zone' (P 052) supplementary plates to specify periods of operation and/or exemptions on colourful posts.</p> <div style="text-align: center;">  </div> <p><b>HH.MM – HH.MM</b> correspond to times the school street is in operation for school drop-off (AM) and collection (PM).</p>		
Identifying the area as a school street	Cluster of colourful roundels <sup>2</sup> .	<ul style="list-style-type: none"> <li>Cluster of colourful roundels<sup>2</sup>, <u>OR</u></li> <li>Buff coloured band 5-10m long (high friction surface).</li> </ul>	<ul style="list-style-type: none"> <li>Cluster of colourful roundels<sup>2</sup>, <u>OR</u></li> <li>Buff coloured band 5-10m long (high friction surface).</li> </ul>
Road markings	<ul style="list-style-type: none"> <li>SCOIL / SCHOOL.</li> <li>GO MALL / SLOW on approaches where speed is an issue.</li> </ul>		

School Street Elements	Level 1	Level 2	Level 3
<b>Road Closure Barriers</b>	<p>Optional – cones or other temporary barrier may be required at the inception stages).</p> 	<p>Expandable / Concertina Barrier.</p> 	<p>Collapsible / removable bollards <u>OR</u> planters.</p> 
<p>Area between gateways</p>			
<b>Identifying the area as a school street</b>	<ul style="list-style-type: none"> <li>• Pencil-shaped bollards.</li> <li>• Clusters of colourful roundels<sup>2</sup> where required.</li> </ul>	<ul style="list-style-type: none"> <li>• Pencil-shaped bollards.</li> <li>• Clusters of colourful roundels<sup>2</sup> <u>OR</u> buff coloured band 5-10m long (high friction surface) where required.</li> </ul>	<ul style="list-style-type: none"> <li>• Pencil-shaped bollards.</li> <li>• Clusters of colourful roundels<sup>2</sup> <u>OR</u> buff coloured band 5-10m long (high friction surface) where required.</li> </ul>
<b>Placemaking</b>	<ul style="list-style-type: none"> <li>• Planters.</li> <li>• Micro art.</li> </ul>	<ul style="list-style-type: none"> <li>• Planters.</li> <li>• Micro art.</li> <li>• Murals.</li> </ul>	<ul style="list-style-type: none"> <li>• Planters &amp; Greening.</li> <li>• Micro art.</li> <li>• Murals.</li> <li>• Seating.</li> </ul>
<b>Carriageway</b>	<p>As existing</p>	<p>As existing</p>	<p>As existing</p>

<sup>1</sup> Consider all approaches to school street (junction arms, etc.)

<sup>2</sup> Preferred intervention for primary schools.

## 9. Case Study Examples

The following case studies from Irish SRTS schemes showcase the various ways the existing 'front of school' can be rebalanced towards a safer and healthier environment. The measures below, in combination with the numerous case studies presented in the NTA Rapid Build Active Travel Facilities Advice Note, can be used to gain the necessary road space to provide for active travel modes both at the school gate and the routes to school.

## CASE STUDIES

## BEFORE

## AFTER

*Please note the google street view captions are hyperlinks to the location*

### Rapid Build School Zones, Dublin City Council

Pencil bollards were placed on the carriageway to create additional pedestrian space and narrow the road width. This prevented parking and vehicle idling directly at the school gate.

### St. Peter's National School, St Peter's Road, Dublin 7



[©Google Street View 2019](#)



[©Google Street View 2022](#)

### St Joseph's Girls' National School, Barry Avenue, Dublin 11



[©Google Street View 2018](#)



[©Google Street View 2022](#)



**Assumption Junior and Secondary National Schools, Dublin City Council**

A combination of pencil bollards and knee-high railing at green verges are acting as a parking deterrent on footpaths and verges during the morning and afternoon peak times.



[©Google Street View 2022](#)



*Photo courtesy of Dublin City Council*

**St Paul's National School, Dooradoyle, Limerick City & County Council**

Narrow planters were used to provide separation and increase safety for cyclists at the approach to the school gate.



[©Google Street View 2022](#)



*Photo courtesy of An Taisce SRTS*

**St Flannan's National School,  
Inagh, Clare County Council**

Gateway treatment for school zone with uncontrolled raised crossing.

Further raised zebra crossing was provided at the immediate Front of School.



*Photo courtesy of An Taisce SRTS*



*Photo courtesy of An Taisce SRTS*



*Photo courtesy of An Taisce SRTS*



*Photo courtesy of An Taisce SRTS*

**Scoil Iognaid, Galway City Council**

Gateway treatment for school street with colourful roundels on the carriageway and colourful sign posts used for identification.



[©Google Street View 2017](#)



[©Google Street View 2022](#)

**An Modhscoil (School Street), Limerick, Limerick City and County Council**

Placemaking with planting and street furniture – Micro art, greening, seating areas and other colourful elements introduce a sense of place, which is key to SRTS schemes.



[©Google Street View 2022](#)



*Photo courtesy of An Taisce SRTS*



**Bunscoil Rinn an Chabhlaigh,  
Cobh, Cork County Council**

Placemaking with planting, street furniture and street art – Colourful murals and micro art were introduced to enhance the Front of School environment and establish an attractive congregation area.



[©Google Street View 2022](#)



*Photo courtesy of An Taisce SRTS*



*Photo courtesy of An Taisce SRTS*

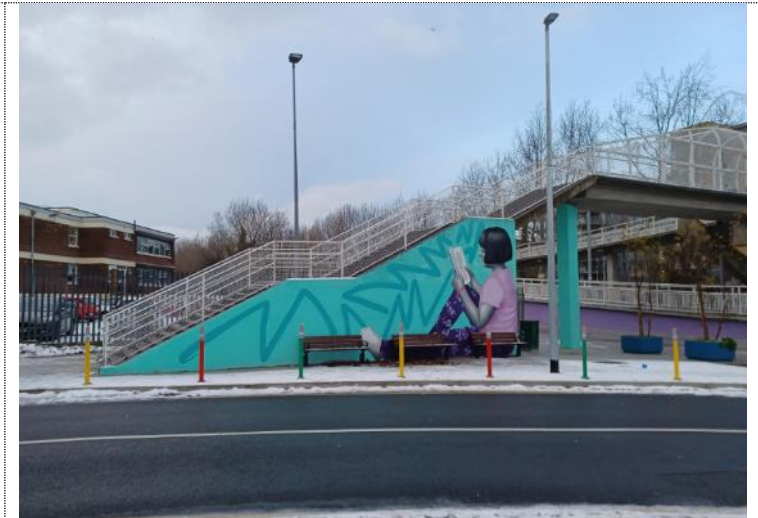


**Avonbeg Rd, South Dublin County Council**

As part of a rapid build scheme referenced in Table 1 a mural was commissioned for the bridge ramp outside a school and colourful pencil bollards were used to restrict parking.



*[©Google Street View 2019](#)*



*Photo courtesy of South Dublin City Council*

**Placemaking with planting and street furniture**

**“Car bike ports”, Dublin City Council, Various Locations**



*South Great George's Street*



*[©Google Street View 2022](#)*

**Other creative uses of cycle parking**



*Portlaoise Cycle Parking – Photo Courtesy of Laois County Council*



**International School Street Examples:**

**Bessemer Grange Primary School, LB Southwark, London, UK**

25% of all primary schools in London are on a school street.

The majority of school streets are established by introduction of regulatory signage. In some cases, where considered necessary, collapsible / retractable bollards are also installed.



[©Google Street View 2019](#)



[©Google Street View 2022](#)

## 10. Indicative Costs for Key SRTS Elements

Table 1: Schedule of Estimated Rates\* for SRTS Schemes (2023)

Ref	Item	Qty	Unit	Typical Cost (Range) €	Comment
1	Pencil-shaped bollards and fixing (steel)	1	no	300-350	
2	Pencil-shaped bollards and fixing (polyurethane)	1	no	200-250	
3	Flexible bollards and fixing (plastic)	1	no	120-150	
4	Retention socket	1	no	300-320	
5	Removable access control bollard and fixing	1	no	475-600	
6	Knee-high wooden railing and fixings	1	m <sup>2</sup>	60-140	€60/m low level protection fence
7	Coloured Roundels; Reflectorised; thermoplastic screed; with applied ballotini	4	no	400-480	Cluster of 4no Roundels (mixed colours)
8	Road Markings, Reflectorised; extruded thermoplastic; with applied ballotini, Continuous line; 100mm wide; white; TSM RRM001	1	m	1.5-2.0	
9	Road Markings, Reflectorised; extruded thermoplastic; with applied ballotini, Continuous line; 150mm wide; hatch marking; white; TSM RRM021	1	m	2-2.50	
10	Reflectorised; thermoplastic screed; with applied ballotini, Cycle symbol; 1.2m high; white; TSM M116	1	no	65-85	
11	'SCOIL' road markings	1	no	250-300	
12	SCHOOL' road markings	1	no	300-350	
13	SLOW' road markings	1	no	250-300	
14	'School Ahead' (W 141) sign on colourful post	1	no	300-350	
15	'School Ahead' (W 141) sign on post with colourful covers	1	no	350-400	
16	'School Ahead' (W 141) sign & 'Pedestrianised Street' (RUS 021) sign with 'Pedestrianised Zone' (P 052) supplementary plates on colourful posts	1	no	850-1000	
17	'School Ahead' (W 141) sign & 'Pedestrianised Street' (RUS 021) sign with 'Pedestrianised Zone' (P 052) supplementary plates on post with colourful covers	1	no	900-1200	
18	School ahead & amber warning signals (including periodic speed limit)	1	no	4,000-5,000	
19	Driver feedback electrical (hardwire) signs (interactive display)	1	no	3,000-3,500	
20	Small zebra planter – cycle lane separator	1	no	400-500	Planter size 1000mm long x 300mm wide x 400mm high (including soil/plant)
21	Stainless Steel 46 litre capacity bin	1	no	1,250-1,500	
22	Sheffield cycle stand	1	no	180-260	
23	Micro art	1	no	250-1000	Typical size 1.5 x 1.5m
24	Bolt down speed ramp	1	no	300-350	
25	Full build speed ramp	1	no	10,000.00	
26	Buff coloured high-friction carriageway surface	1	m <sup>2</sup>	50-60	



Ref	Item	Qty	Unit	Typical Cost (Range) €	Comment
27	Raised uncontrolled pedestrian crossing (including raised ramp, road markings, blister tactile paving, localised kerb and footway adjustments)	1	no	10,000-15,000	
28	LED Belisha Beacons Complete (Composite Item) - Supply and Installation of B1 Type Zebra Crossing <ul style="list-style-type: none"> <li>LED Belisha Beacons complete.</li> <li>6 metre galvanised belly type poles with 140mm base, black and white banding to 3.5m on 76mm section</li> <li>Philips Luna LED pedestrian crossing luminaires</li> <li>Solar cells and brackets</li> <li>6 L Type Belisha Beacon mounting brackets</li> <li>Hoist hire for installation of lighting at high level</li> <li>3-core SWA cable as specified</li> <li>Mini pillar</li> <li>Rotafash control units</li> <li>Single aspect amber LED aspects heads</li> <li>Item Installation and commissioning of the above equipment</li> </ul>	1	no	7,500-8,200	Excludes cost for raised elements, line markings, tactile paving, kerb adjustments, etc.
	- Extra on B1 for electrical chamber/feeder	1	no	3,000-3,200	
30	Belisha Beacons Complete (Composite Item) - Supply and Installation of B2 Type (no lantern - refer to TII drawing 05138) <ul style="list-style-type: none"> <li>LED Belisha Beacons complete.</li> <li>3 metre galvanised belly type poles with 140mm base, black and white banding to 2m on 76mm section.</li> <li>Item 3-core SWA cable as specified</li> <li>Mini pillar</li> <li>Rotafash control units.</li> <li>Item Installation and commissioning of the above equipment</li> </ul>	1	no	5,200-6,000	Excludes cost for raised elements, line markings, tactile paving, kerb adjustments, etc.
	- Extra on B1 for electrical chamber/feeder	1	no	3,000-3,200	
31	Toucan Crossing Lights Complete (Composite Item) - Toucan Crossing including all traffic signal poles (3 number), signal heads (3 number) for traffic and pedestrian/cyclists, push button units, pole boxes, all associated cabling from the power supply mini pillar to the controller cabinet and to all signals/detectors/controllers etc, detection equipment for pedestrians, cyclists and traffic, commissioning and testing and including all electrical design	1	no	22,000-25,000	Excludes cost for raised elements, line markings, tactile paving, kerb adjustments, etc.
	- Extra on B1 for electrical chamber/feeder	1	no	3,000-3,200	
32	Precast Paving; 40mm thick Type B mortar laying course; 150mm thick C32/40 concrete base; 150mm thick clause 804 sub-base; surfaces sloping at 10 degrees or less to the horizontal	1	m <sup>2</sup>	78-90	
33	Paved areas, tactile paving, 400 x 400 x 65 concrete, blister surface, coloured buff, to CC-SCD-01103, laid on minimum 30mm maximum 70mm fibre reinforced semi-dry concrete containing Forta-fibre polypropylene fibres or other approved fibre reinforcement at a rate of 0.9kg/m <sup>3</sup> , minimum bedding compressive strength 35N/mm <sup>2</sup> , on 150mm Clause 804 Type B, surfaces sloping at ten degrees or less to the horizontal	1	m <sup>2</sup>	120-150	

Ref	Item	Qty	Unit	Typical Cost (Range) €	Comment
34	Continuously Reinforced Concrete Pavement C32/40 Grade Concrete. 230mm Thickness On 150mm Sub-Base To Clause 804	1	m <sup>2</sup>	110-150	
35	Footways/Cycleways; surfaces sloping at 10° or less to the horizontal; 150mm thick granular material Type B sub base; 60mm thick AC20 HDM bin 40/60 des binder course; 40mm thick AC6 dense surf 70/100 des surface course	1	m <sup>2</sup>	45-55	
36	ACO Kerb Drain 305	1	m	110-130	
37	Carriageway resurfacing	1	m <sup>2</sup>	50-60	

\* All rates exclude VAT.

Rates Exclude Preliminaries and Traffic Management – Typically, lower 10%: Median 15%: Upper 20%.

Refer to the NTA Active Travel Infrastructure, Schedule of Rates (June 2023) for further information on rates.

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