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Best practice for safe roads around schools

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ΜΕΛΕΤΑΜΕ ΤΟ ΠΑΡΟΝ - ΣΧΕΔΙΑΖΟΥΜΕ ΤΟ ΜΕΛΛΟΝ

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Presentation outline

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Background and Objectives

Background

- Among VRUs, there are some specific groups such as the elderly, the disabled and children that could be considered more vulnerable than others.
- Especially for children, there are multiple risk factors that together lead to an increased risk for them in traffic, with either physical or behavioural nature.
- Road traffic injury is currently the leading cause of death for children and young adults aged 5–29 years.
- The traffic environment around schools consists one of the most complex traffic environments regularly encountered by children.

Objectives

- Attract attention to best-practice infrastructure engineering strategies that can potentially be implemented near schools in terms of road safety.
- Demonstrate selected case studies from EU countries and internationally regarding safe roads around schools.
- Present the results of a questionnaire survey performed in the framework of RADAR project within the Danube area countries and the RSEG countries regarding road safety around schools.

Infrastructure Engineering Strategies

Road safety problems near schools

- School staff, parents or local residents often observe several road safety problems near school areas.
- These problems are also commonly identified by site inspections and road safety audits or statistical analyses of data on road crashes near schools.
- Finding solutions and suggesting the appropriate interventions require expertise in road safety and traffic management, and each situation may have its own unique characteristics.
- However, there are some more obvious problems near schools such as deficiencies in pedestrian footpaths, missing warning signs, etc., for which common engineering strategies may assist in identifying hazards and suggesting solutions.

Speed Management

A fundamental requirement of the road environment near schools should be low traffic speeds.

- Installation of special school zone speed limits (including: flashing lights, dynamic road signs, speed limit pavement markings)
- Roundabouts
- Speed humps
- Median refuge islands
- Curb extensions
- Rumble strips
- Narrowing traffic lanes
- Chicanes
- Raised pedestrian crosswalks
- Raised intersections
- Partial and full road closures to motorized vehicles

Warning Signs

- School advance warning signs and school crosswalk signs are important elements for road safety near schools.
- School advance warning signs should generally be used in advance of the first school crosswalk sign encountered by each direction of traffic.
- School crosswalk signs shall not be used at crossings other than those next to schools and those on established school pedestrian routes.
- Warnings to alert drivers to modify their behaviour as they approach a school could include school crossings, pedestrian crossings, presence of school, presence of pedestrians near school, etc.

Parking Management

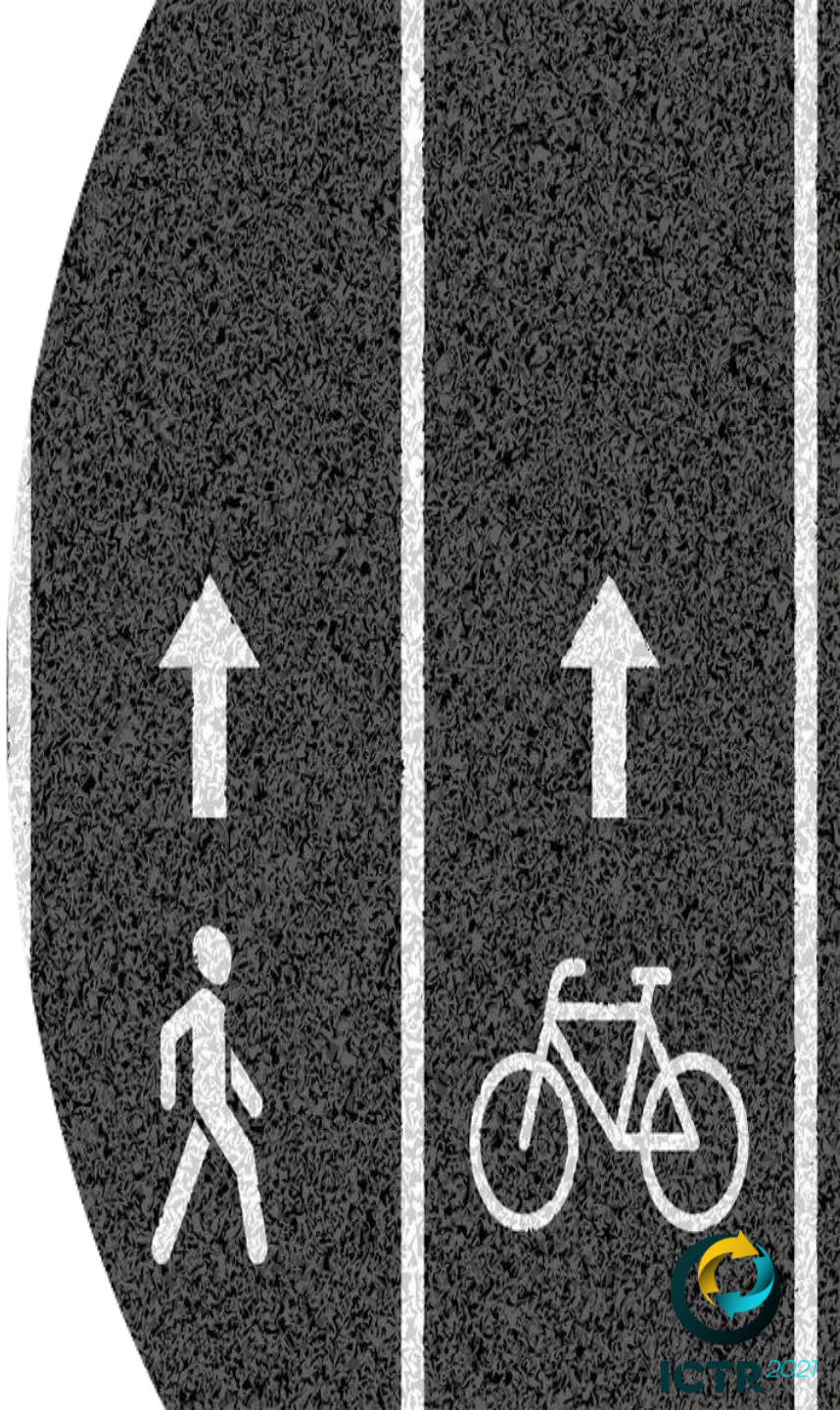
- For lengths of roads that are intended for pick-up and set down areas only, "no parking" signs should be used.
- However, in the after-school period, parents often arrive earlier than school finishing time so pick-up sections are usually inadequate to serve their needs. For this reason, parking areas that cater for parking of vehicles are necessary.
- Regarding on-road parking, embayed parking is preferred along school frontages.
- Bus parking could be off-road. However, the bus turning circle requirements can be forbidding and it may not be feasible to cater for buses other than in indented parking areas on the road.
- Regarding public transport to and from schools, the most preferable choice is for public buses to drop off and pick up children on the side of the school entrance but not right in front of the entrance.

Road Crossing

- Traffic control signals are usually installed at intersections with high volumes of conflicting traffic. The signals may also include pedestrian lights incorporated with signals.
- However, they may not be the best solution as it is not very easy for young children to understand the operation of traffic control signals.
- Keeping pedestrian crosswalks brightly painted and well maintained helps alert drivers to look for pedestrians crossing the street, improving pedestrian safety and visibility.
- Crosswalks that are painted with a zebra or ladder stripe are more effective than two parallel lines because they are more visible to all road users.

Bicycle Safety

- The number of bicycle users varies from one school to another and from country to country.
- One general guideline for bicycle safety is the creation of wide bicycle paths around schools which ensure the safe co-existence of cyclists and pedestrians.
- The entrances to bicycle parking areas on schools should be separate from the entrances of other motor vehicles (e.g. cars, buses etc.) and pedestrians.
- Generally, the potential conflicts between bicycles and motor vehicles should be avoided.



Case Studies

Star Rating for Schools

- It is the first evidence-based tool for measuring, managing and communicating the risk children are exposed to on a journey to their school.
- It supports quick interventions that could save lives and prevent road crashes with serious injuries from day one.
- It measures safety before and after road improvements.
- It provides an evidence-based rating of road safety (1-5 stars).
- It combines a central web application and a data collection Android app that harness the power of the iRAP Star Rating for Pedestrians

Example of upgrades in Lusaka (Zambia) led from 1 to 5 stars school entrance (Source: Star Rating for Schools, 2020)

Credible speed limit in Zone 30, Slovenia

- In town Krško in Slovenia, there was a need for new road design near the primary School.
- The aim was to implement a new road design that would lead to lower driving speeds, more careful driving and increased road safety mainly for children walking or cycling to their School.
- After comparison of "before and after" implementation of colourful road design, it was observed that driving trajectories were not affected by the colourful circles and these were not a hazard for drivers.
- Moreover, speed measurements showed that drivers tended to slow down and reduce speed, and it was concluded that this project was successful since credible speed limits and VRU's enhanced safety were achieved.

Example of interventions (Source: PIARC, 2019)

Road Safety in Rural School Areas, Chile

- The main objective was to ensure calm traffic areas for schools' environments and create a school safety zone for students, teachers and parents, especially during the hours of entrance and exit of students.
- Particular emphasis was placed on achieving operating speeds that comply with the national regulations.
- Lane narrowing on the horizontal curve was an effective way to increase road safety.
- Speed humps and speed cushion found to be relatively low cost measures that force drivers to reduce traffic speeds.
- Transverse lines were also influential on driver behaviour.
- The results indicated that drivers were able to reduce their speed less than or equal to 50km/h in front of the school, when speed humps were installed.

Speed hump (up), Transverse lines on both lanes (down) (Source: PIARC, 2019)

Survey in RADAR and RSEG countries

Participating countries and topics

- Responses were collected from seven (7) countries: Austria, Bulgaria, Croatia, Czech Republic, Greece, Republic of Moldova and Slovenia

- The questionnaire comprises of the following five survey topics:
  1. Collection of road accidents data related to casualties near schools.
  2. Specific guidelines for road infrastructure safety around schools.
  3. Special infrastructure measures "traditionally" used.
  4. Specific speed limits set by Road Traffic Code near schools.
  5. Best practices for road safety infrastructure measures near schools

Survey results

1. *Collection of road accidents data related to casualties near schools:*
   In six (6) out seven (7) countries, data related to casualties near schools are not collected. Only Austria responded positively
2. *Specific guidelines for road infrastructure safety around schools:*
   Three (3) countries responded negatively: Bulgaria, Croatia and Moldova
3. *Special infrastructure measures "traditionally" used:*
   speed humps, speed limit signs, zebra crossings, pavement markings, refuge islands, chicanes.
4. *Specific speed limits set by Road Traffic Code near schools:*
   In none of the seven (7) responded countries there is a specific speed limit set near schools by the Road Traffic Code.
5. *Best practices for road safety infrastructure measures near schools:*
   Various examples provided by each country.

Concluding Remarks

Concluding Remarks (1/2)

- Road safety education is essential in today's world as road traffic is becoming more and more complex.
- In addition to the provision of road safety education to students, a safe and friendly road environment around schools is also essential.
- The majority of interventions concern speed management and aim to ensure low speeds around schools.
- Each case of road safety improvement around schools is unique and needs to be carefully considered by road safety and traffic management experts.

Concluding Remarks (2/2)

- As a first step, hazardous locations near schools and the causes of road safety problems should be identified.
- Undoubtedly, systematic collection of data on road crashes near schools and related casualties would contribute positively to the identification of the hazardous locations.
- Afterwards, intervention priorities should be defined and then the selected interventions should be implemented.
- Finally, studies based on "before and after" comparisons should be conducted in order to evaluate the road safety effect of implemented interventions.

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