

School and Playground Zone Speed Limits

Council Meeting
February 27, 2018

Transportation Planning and Engineering

Ryan Anders, P.Eng.
Manager, Planning, Engineering and Safety

Debbie Rawson, M.Sc.
Transportation Integration and Safety Advisor

Background

that Administration bring forward a report on the methodology for deciding where school zone and playground zone speed limits will be applicable, including consideration of the Transportation Association of Canada Guidelines for school zone speed limits and provide recommendations for proposed changes to Bylaw 38-2014 which would amend the playground and school zone times so that they are aligned with those of other municipalities in the region, to the extent that these align with best safety practices, and with consideration to the needs of our rural schools.

Council Motion, December 12, 2017







Outline of Presentation

- Two Parts:
 - Methodology for application of School and Playground Zones
 - Considerations for Amending Speed Control Bylaw 38-2014 for School and Playground Zones

Part 1: Methodology for Application of School and Playground Zones

- The Alberta Traffic Safety Act (ATSA) – Playground and School Zones
- Transportation Association of Canada's Engineering Design Guidelines
- School and Playground Signage Review Project – 2011-2013
- Safe System Approach/Pedestrian Safety Research

The ATSA – Playground and School Zones

<u>Area</u> Be cautious that children may be close by.	School Area 	Playground Area 
<u>Zone</u> Be cautious that children may be close by. Stay within the maximum posted speed. No Passing.	School Zone  	Playground Zone  

TAC Points

INSTALLATION CRITERION	MAXIMUM POINT VALUE (MPV)	DESCRIPTION		WEIGHT FACTOR (WF)	SCORE (MPV × WF)
School Type Or Playground Type	40	elementary		1.0	T* =
		middle / junior high		0.4	
		high school		0.2	
		post secondary / college / university		0.0	
		Frontage	Playground Capacity (number of children)		
		≥50m	16 or more	1.0	
			5 to 15	0.75	
			1 to 4	0.4	
< 50m	Any Facilities	0.2			
Fencing	20	fully traversable		1.0	F =
		partially traversable		0.5	
		non-traversable		0.1	
Road Classification	20	Urban	Rural		C =
		local		1.0	
		minor collector	local	0.75	
		collector	collector	0.5	
		major collector / minor arterial	arterial	0.25	
		major arterial / expressway	freeway / highway	0.0	
Property Line Separation	10	abuts roadway		1.0	L =
		within 50m		0.5	
		further than 50m		0.0	
Entrance	5	main entrance / multiple secondary entrances		1.0	E =
		secondary entrance		0.6	
		none		0.0	
Sidewalks	5	none (or non-property side)		1.0	S =
		school side		0.6	
		playground side		0.4	
		both sides		0.0	

* T is School Type or Playground Type, not the sum

Points:	0	10	20	30	40	50	60	70	80	90	100
School:	Nothing					Area	Area or Zone	Zone			
Playground:						Area		Zone			

Modified TAC Points

Site Length	Penalty	Points:	0	10	20	30	40	50	60	70	80	90	100
15 to 20m	-10 points	School:	Nothing					Area		Zone			
less than 15m	-20 points	Playground:						Area		Zone			

Transportation Association of Canada's (TAC) Engineering Design Guidelines (2006)

School and Playground Signage Review Project – 2011-2013

- Initiated to improve safety, consistency and enforceability at school and playground zones
- Three years of research
- Evaluated 720 playgrounds, sports fields, green spaces, trail crossings and 52 school sites against TAC guidelines
- Proposed a two phase approach

Phase I: 2012 Implementation

- Install missing warranted signs
- Revise dual school and playground zones
- Remove signs for areas less than 20 metres in length
- Revise rural signing where speed limits reduce from 80 km/hr to 30 km/hr by adding a 50 km/hr step down



Phase I – 2012 Implementation



Phase II: Bringing Remaining Zones in Line with TAC GUIDELINES

- Phase II was not implemented. If it were:
 - Approximately 70% of existing playground zones would become areas or have no signing at all.
 - 2 elementary schools, all Jr. High and High Schools would become school areas or no signing at all.
- Administration has not implemented Phase II to date because:
 - Resident support for PG and SZ
 - Engineering best judgement

Safe System Approach

(Vision Zero, Sustainable Safety, Safe Journeys)

- Vision Zero: A desired future state
 - “What” we want
 - No deaths or serious injuries NOT no crashes
- Safe System: “How” we get there
 - An ethical approach to road safety.
 - Eliminate the kind of crashes that cause serious injury and death

Safe System Approach

People Make Mistakes

The price of a mistake should not be death or serious injury

Crashes WILL occur

Human body has a limited tolerance of violent forces

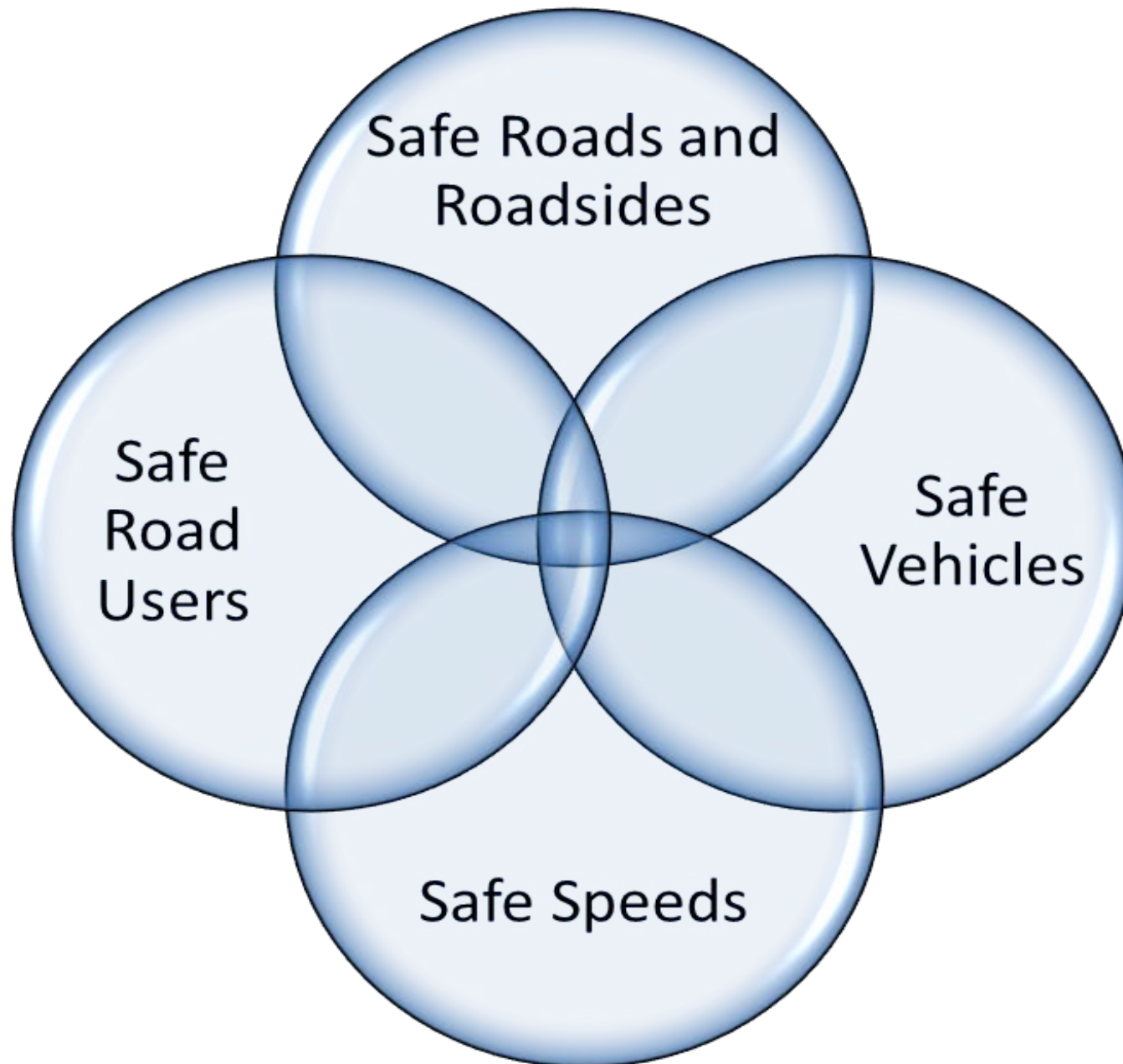
$$\text{Energy}_{\text{Kinetic}} = \frac{1}{2} \text{ Mass} \times \text{Velocity}^2$$

Build forgivingness into road system

Manage road infrastructure, vehicles and speeds to reduce crash energies to levels that can be tolerated by the human body

In every situation a person might fail, the road system should not

Safe System Approach



Shared responsibility for
safety between road
designers, road users and
road regulators

Pedestrian Safety Research

Severity of collisions and chances of fatality are dramatically higher as speeds increase.



Anderson et al. (1997) suggests that a fatal pedestrian accident is six times less likely to happen if the vehicle's impact speed is 37 km/h (10% chance of fatality) as opposed to 45 km/h (60% chance of fatality).

"The current speed limit of 50 km/h on most residential streets is not congruent with research findings and best practices related to speed management and risk reduction, particularly in relation to children."

Canadian Council of Motor Transport Administrators (Expert Working Group on Pedestrians, 2013)

Part 2: Considerations for Amending Speed Control Bylaw 38-2014 for School and Playground Zones

- Alignment with Strathcona County's Strategic Direction
- Collision History in our School and Playground Zones
- Neighbourhood Traffic Safety Action Plan
- Other Municipal Experiences
- Local Stakeholder Perspectives
- Options to Amend our Speed Bylaw
- Recommendation

Alignment with Strathcona County's Strategic Direction



From a traffic perspective, what does a livable neighbourhood mean to you?





Integrated Transportation Master Plan

ITMP VISION: Strathcona County has a resilient, safe, multi-modal transportation system, integrated with land use planning, to accommodate growth, provide greater travel mode choice, and manage traffic congestion (2012).

Traffic Safety Strategic Plan 2020

- TSSP Vision: No one is seriously injured or killed while travelling on Strathcona County's road network.
- TSSP Mission: Strathcona County is committed to the proactive implementation of integrated, evidence-based, and collaborative road safety strategies to create an increasingly safe and sustainable transportation environment.

Collision Statistics 2007-2016

Residential Collisions		Arterial Collisions
1	 Fatal Injury	59
18	 Major Injury	347



112

Collisions-
cyclist/pedestrian
under 18 (07-16)

33

Residential
Area

79

Arterial/Grid
Road

13

in school/
playground
zone

20

Not in a school/
playground
zone

88.4%

of collisions involving
cyclists or pedestrian
under 18 did not take
place in a school or
playground zone

11.6%

13 Playground or School Zone Collisions

involving a pedestrian or cyclist under 18 (2007-2016)



11

Minor Injuries



1

Major Injury

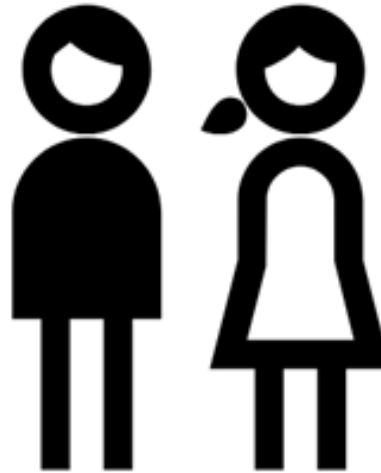


1

No Injury

0

Pedestrian/Cyclist
under 12 years old



13

Pedestrian/Cyclist 12-
17 years

13 Playground or School Zone Collisions

involving a pedestrian or cyclist under 18 (2007-2016)

- **11 School Zone collisions**

- 6 during School Zone times
- 5 outside School Zone effective times



- 1- summer
- 1- 10 pm
- 2- mid-day during school
- 1- 4:54pm school day



- **2 Playground Zone collisions**
- Both occurred during current playground zone effective times

Neighbourhood Traffic Safety Action Plan (NTSAP)

- Adopted in May 2017 after **Extensive** Consultation with residents.
- Existing Playground and School Zones are very important to residents. Residents also value clarity, traffic flow and consistency.
- Sets out eight specific actions based on resident priority and best practice.
- Goal is to provide measureable improvement in the safety and livability of our neighbourhoods.
- Three of these actions have particular relevance to consideration of changes in school and playground zones.

Neighbourhood Traffic Safety Action Plan

Action #1: Research a residential speed limit decrease, including the results from other jurisdictions who have implemented the practice to recommend a best course of action for our community.

Neighbourhood Traffic Safety Action Plan

Action #3: Upgrade pedestrian facilities at multiuse trail crossings, playgrounds, schools and key pedestrian corridors. Include physical traffic calming features (such as raised features, refuge islands, and/or curb extensions) in conjunction with scheduled rehabilitation as appropriate.



Neighbourhood Traffic Safety Action Plan

Action #5: Consider alternative resourcing and delivery models for residential traffic enforcement in a way that is responsive to resident needs while minimizing impacts to arterial enforcement operations.

Stakeholder Perspectives










- The School Traffic Safety Partnership (STSP) was formed in 2014 to address school-related traffic safety issues. In 2017, the STSP released a position statement:

“the Strathcona County School Traffic Safety Partnership supports the implementation of all day school zones in our community. Specifically, we recommend a bylaw where speeds in all school zones are limited to 30 km/h from 7:30 a.m. to 4:30 p.m.”



Alberta Municipalities

City/Town	Effective Time	
	Start	End
Town of Beaumont	7:30 AM	4:30 PM
City of Grande Prairie	7:30 AM	4:30 PM
City of Lethbridge	7:30 AM	4:30 PM
Regional Municipality of Wood Buffalo	7:30 AM	4:30 PM
City of Airdrie	7:30 AM	5:00 PM
City of St Albert	8:00 AM	4:00 PM
City of Edmonton*	8:00 AM	9:00 PM
City of Fort Saskatchewan	8:00 AM	4:30 PM
Town of Stony Plain	8:00 AM	4:30 PM
Town of High River	8:30 AM	5:00 PM
City of Medicine Hat*	7:30 AM	9:00 PM
City of Calgary*	7:30 AM	9:00 PM
City of Red Deer*	8:00 AM	9:00 PM
City of Leduc/City of Spruce Grove	8:00 AM	9:30 AM
	11:30 AM	1:30 PM
	3:00 PM	4:30 PM
*Schools and Playground zones combined		

Options \ Factors	Safety Research	Collision Data	Cost	Enforcement	Traffic Flow	Short Cutting	Stakeholders
							
	Positive +	Neutral	Negative -	Negative -	Negative -	Positive +	Positive +
	Positive +	Negative -	Negative -	Negative -	Negative -	Positive +	Positive/ Negative +/-
Option C: Make no change	Negative -	Neutral	Neutral	Neutral	Neutral	Neutral	Negative -

Costs

- Option A: All day school zones (7:30 am to 4:30 pm)
 - Sign costs: 75 tabs will need to be purchased and installed
 - Labour costs: Approximately 4 signs per hour can be installed with a 2 person sign crew and County vehicle.
 - **Estimated cost: \$5 000**
- Option B: Harmonized Playground Zones (7:30 am to 9:00 pm at all schools and playgrounds)
 - Sign costs: Replacement of 75 school signs with Playground signs plus addition of tabs on 75 school and 400 playground signs.
 - Labour costs: Approximately 3 signs per hour can be installed for school zones and 4 signs per hour for playground zones with a 2 person sign crew and County vehicle.
 - **Estimated cost: \$30 000**

Timelines

- If a decision is made (either Option A or B) to change school and/or playground effective times, recommended implementation is September 2018.
- This timeline meets the needs of Strathcona County and the schools for ensuring appropriate bylaw, signing and communications are in place before implementation.

Option A: Amend Speed Bylaw to create all-day school zones (7:30 am to 4:30 pm)

- Reasonable compromise between safety and efficiency
 - Improves the forgivingness of our road system at schools on school days
 - Collision data does not support the need for greater traffic flow impacts at school sites or playgrounds
- Going to an all day model:
 - Addresses primary stakeholder concerns
 - Consistent with provincial trend towards all-day speed reduction at schools
 - Can be resourced through existing budgets

Questions?