How to Improve Pedestrian Safety Guide for Communities

A Comprehensive Approach

Improving pedestrian safety in your community is best achieved using a comprehensive approach. This means that your initiative will have more chance of success if it includes **educational, enforcement and environmental** strategies that address the factors that influence pedestrian safety at the individual and environmental levels.

The Three E's of Prevention - What Factors can be Changed?

Research shows that a combination of strategies is most effective in reducing pedestrian injuries, utilizing:

- education
- enforcement
- environmental change

The least expensive approach and one that is most often undertaken is education. Educational strategies may involve raising awareness of the issue(s) and providing information in an effort to achieve behaviour change. Although important in drawing attention to the issue(s) and achieving at least short-term benefits, education alone is not enough to prevent injuries. Both enforcement and environmental change are more complex and take longer to implement, but are most effective in achieving significant, long-term changes to behaviour resulting in decreased injury rate and/or severity when used in combination with education.

Education

Education strategies can focus on a variety of audiences, for example, parents/caregivers, children, community residents and policy makers. Except for children, all of these audiences are likely to be both pedestrians and drivers, and they can benefit from strategies to raise awareness of their joint responsibilities to respect the rules of the road and each other. Education programs can also provide age-appropriate skills training to improve safe walking and driving behaviours. The following section will speak to the education of parents/caregivers and children.

Safety education can increase children's knowledge of safe road behaviour and can improve road crossing behaviour. However, the effect of children's improved behaviour in response to education decreases over time, due to developmental immaturity. This suggests that safety education should be repeated at regular intervals. Getting parents involved helps to maximize the success of children's road safety education programs.

So, how do you get people to follow good advice, to behave in ways that help prevent injury? For children, education needs to be appropriate to the age and stage of intellectual and physical development. For adults and children alike, behaviour change requires that (1) people see themselves as potentially at risk, (2) realistic solutions are provided and (3) they believe they can affect change.

According to child development specialists, children under nine are in a stage of growth and development which puts them at risk around traffic and which makes it difficult for them to apply traffic safety rules. According to the research, young children are at risk because:

- They often lack a sense of vulnerability. They don't understand that a car might seriously hurt or kill them if they are hit by one.
- Young children may believe that grown-ups will look out for them. They think that if they can see an adult drive a car toward them, the driver must be able to see them and stop.
- Young children are often restless and impulsive, and have trouble waiting (e.g., for lights to change).
- Young children's sense of perception is different than that of adults. They may think that large cars move more quickly than small cars or that wide streets are dangerous and narrow ones are safe. Children can have difficulty judging whether a vehicle is moving or how quickly it is moving.
- Young children tend to focus mainly on the things that interest them the most.
- Children can't see out of the corner of their eyes as well as adults can. Their peripheral vision is not fully developed; it is two-thirds that of an adult.
- Children's height causes visibility problems for children and for drivers.
- Young children often have trouble knowing where to find the source of sounds (e.g., a siren). They may turn the wrong way searching for the sound.

By age nine, children's brains have reached the stage of development that allows them to be more responsible and to make better judgements. This is because:

- Their brains become increasingly capable of processing multiple pieces of information at the same time; their thinking becomes more sophisticated, more finely tuned.
- They begin to develop feelings of vulnerability and therefore are more conscious of risks and consequences of their activities.
- They become less impulsive - they are more likely to think before acting.
- They develop physical coordination: they can now walk with good balance, heel to toe, in a straight line.

Education can be passive or active. Many passive measures already exist, such as fact sheets, brochures, and pamphlets for parents that highlight pedestrian safety measures. Many educational programs focus on pedestrian safety to and from school. Although they do not address the whole range of exposure child pedestrians are likely to experience, they can be a good starting point to build a comprehensive approach to pedestrian safety. Some examples of programs that address these issues include:

In-Services

Local police services often provide safety education to children in school settings. Officers visit classrooms to provide information and demonstrations on a variety of safety topics, including pedestrian safety. In some areas of the country, Safety Villages have been built that recreate miniature towns with streetscapes that address a variety of transportation safety issues such as railway crossings, pedestrian safety, cycling (and other wheeled activities) safety. After classroom instruction by police, fire, and other safety personnel, the children demonstrate their knowledge of safety around the miniature village.

Active and Safe Routes to School

School communities, e.g. parent council, principal, school trustee, transportation services, police, often conduct "neighbourhood walkabouts" to identify specific transportation and safety issues at school sites and to prepare a plan of action to deal with these issues. Active and Safe Routes to School has a resource guide for individuals or groups wishing to encourage healthier and safer lifestyles in their children by implementing the program.

There are six distinct components:

- International Walk to School Day
- Walking Challenge/Kilometre Club
- Neighbourhood Walkabout
- No Idling at School
- Walking School Bus
- Classroom Mapping - Blazing Trails through the Urban Jungle

Walking School Bus

A walking school bus is a volunteer group of adults who walk with children along a set route to and from school each day. The walking bus promotes safety, traffic skills, exercise, socialization and independence among children. Most importantly, walking school buses increase supervision of child pedestrians and decrease traffic congestion near key drop-off and pick-up locations. To link with case studies from around the world, photos and real world experience, visit www.walkingschoolbus.org.

Environment

Environmental pedestrian injury risk factors are the most modifiable. These include traffic volume, vehicle speed, protected play areas, curb-side parking and mean vehicle speed. Children are at substantial risk for pedestrian injury due to developmental immaturity; therefore, physically separating them from traffic may be a more effective approach (than education alone).

Traffic Calming

A recent trend in Canadian municipalities is to implement traffic calming to resolve traffic and safety problems on residential streets. Traffic calming, however, is not perceived in the same way by everyone. This results in considerable variation in the way in which traffic calming is defined, and the way in which traffic calming measures are applied in different communities.

"Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver-behaviour and improve conditions for non-motorized street users." (Institute of Transportation Engineers)

Experts recommend "...focusing on traffic conditions and traffic calming measures on residential local and collector streets, primarily within urban areas." The reason for not addressing "...arterial streets or rural roads is that the greatest demand for traffic calming is on local and collector residential streets, where it has been proven both appropriate and effective. In comparison, there are fewer situations in which traffic calming measures would be appropriate and effective on arterial streets or rural roads."

The following information is intended to provide an overview of traffic calming measures to assist you when working with traffic professionals. Your committee will need to involve a traffic engineer and/or planner when attempting to implement traffic calming measures as part of your pedestrian safety initiative.

Every community is different and local environments vary widely, making it difficult to establish a 'one size fits all' solution. Below is a listing from the Transportation Association of Canada's Canadian Guide to Neighbourhood Traffic Calming that outlines some of the local factors that will impact the selection of traffic calming measures.

- Weather, particularly winter conditions
- Topography
- Street network
- Existing street design standards, especially widths
- On-street parking conditions
- Driveway locations near intersections

- Transit, truck, service and emergency vehicle requirements
- Designated cycling routes
- Classification and characteristics of vehicles traveling in the community
- Legislation and legal precedents

Traffic calming measures are intended to achieve one or more of the following objectives:

- Reduce vehicular speeds
- Discourage through traffic volume
- Minimize conflicts between street users
- Improve the neighbourhood environment

Speed humps on residential streets are one type of traffic calming which have proven to be effective in substantially reducing child pedestrian injuries. An evaluation of an extensive program of speed hump installation in the city of Oakland, California found speed humps reduced the risk to children by up to 60%, regardless of the general income level of the neighbourhood. Children who lived in an area with no speed humps were more than twice as likely to be hit by a car near their home compared to children living within one block of a speed hump.

Traffic calming measures are associated with less pedestrian injury. Implementing traffic calming measures in key areas, such as schools and residential neighbourhoods, can help reduce both driver speed and injuries. For example, reducing the speed limit to 30km/h in a UK residential neighbourhood saw a 67% reduction in crashes with child pedestrians and cyclists, and an overall speed reduction of 15km/h.

Safety for all street users can be improved when traffic calming measures are appropriately located, designed and signed to address identified problems. Where a traffic calming measure would compromise pedestrian, cyclist or motorist safety, either through inherent design or maintenance problems, through lack of clarity in the intended function of the measure or by creating a false sense of security, then the measure should not be used, even if it might provide some benefits (e.g. on-street parking). Not all traffic calming measures are designed primarily to improve pedestrian safety. In these cases, an alternative measure can often be used which would not create the same negative effects on safety. One of the most important means of ensuring that traffic calming does not compromise safety in any way is to ensure that street users are adequately informed of the presence of traffic calming measures, and how to travel around or through specific devices.

A combination of local knowledge, technical expertise and careful judgement must be used to select an appropriate measure or combination of measures. Involving people with previous traffic calming experience is also very valuable. The Canadian Guide to Neighbourhood Traffic Calming provides a list of principles that are applicable to every situation:

- Identify the real problem. Frequently, the perceived nature of a traffic problem is substantially different from the real problem.
- Quantify the problem. Some problems are more significant than others.
- Consider improvements to the arterial street network first.
- Applying traffic calming measures on an area-wide basis, not on a localized, site-by-site basis.
- Avoid restricting access.
- Use self-enforcing measures.
- Do not impede non-motorized modes.
- Consider all services, including transit, police, fire, ambulance and other emergency services, as well as garbage collection, snow removal and street cleaning.
- Monitor and follow-up.

Monitoring and follow-up are key activities when utilizing and/or implementing traffic calming measures to ensure the changes have improved the initial problem, that they are accepted by the community and to identify any unintended consequences from the changes.

Enforcement

Another very important tool for improving pedestrian environments is enforcement. Police officers and other traffic officials (e.g. crossing guards) must hold drivers and pedestrians accountable for unsafe behaviours. Committees can address driver behaviour through enforcement of speed limits, crosswalk laws and/or traffic signals.

Speed Survey and Enforcement Campaigns

If speeding is a danger that exists in the location your committee is addressing, consider conducting a speed survey and follow up with an enforcement campaign. The key to a successful speed survey and enforcement campaign will be the involvement and co-operation of law enforcement officials. Often, the local municipality has statistics on speeding in the community- check with local law enforcement officials before you being planning a speed survey.

Be sure to conduct the speed survey in a typical traffic situation for that particular road. If there is a controlled intersection (e.g., one with a light or stop sign), conduct the speed survey at a distance from the intersection, where traffic has had the opportunity to reach a normal traveling speed before its speed is clocked.
This type of observation and follow up enforcement campaign can be applied to other traffic violations such as jaywalking, not yielding to pedestrians in crosswalks and rolling through stop signs.

Crossing Guards

School crossing guards assist students in crossing streets, monitor vehicle traffic in the area to ensure there are no problems with speeders or other dangerous activities and provide adult supervision while children are walking near the school or waiting to board buses. Crossing guards also provide traffic direction in congested traffic areas near schools.
Many communities do not have an adequate number of crossing guards to keep children safe at every dangerous intersection. Your committee can help by prioritizing intersections near schools to determine the highest exposure of children to speeding cars and turning vehicles. Once these locations have been identified, find out who is responsible for employing crossing guards (if they aren't already on your planning committee). Set up a meeting with the responsible agency to present the priority intersection list.

Recruiting crossing guards is often difficult because of low pay, time conflicts and poor weather. If relevant, extend your assistance to help recruit or train crossing guards.
On an annual basis, work with the school district, police department or transportation department to recognize the service of crossing guards. Promote these local heros to the media. A recognition program can inspire presently serving crossing guards to continue their work and may help recruit new crossing guards. Visit the Walk This Way webpage on the Parachute website (www.parachute.ca) to learn more about our Canada's Favorite Crossing Guard contest, as an example.

School Safety Patrol

School safety patrols are older students (at least 10 years of age) who direct their peers and smaller children in the school vicinity. These students are not crossing guards. Safety patrollers are senior elementary school students who do not stop or direct vehicular traffic. Patrollers should only be located at crossings where the regular flow of vehicular traffic presents frequent intervals to allow students to safely cross the road. School safety patrols also remind children to look both ways and not to run while crossing the street. They must be able to physically perform their duties, which may require long periods of standing outside in adverse weather conditions.

Eligibility is dependent on parental consent. Parents or guardians should read and sign an application form before their child begins patroller training. Membership in the patrol is voluntary. A school safety patrol inspires school children to develop positive relationships with peers and authority figures and establishes leadership skills.

Visit www.parachute.ca for more information on injury prevention.