

## **PLAYGROUND AND SCHOOL ZONE AWARENESS UPDATE**

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### **EXECUTIVE SUMMARY**

Eight traffic control treatments were studied to measure their effectiveness at making drivers aware they were entering school and playground zones.

The study found that programs with personal presence are most effective and that installing warning markings or devices results in smaller speed reductions in school and playground zones. Continued collaboration with Calgary Police Services will have the most significant impact on compliance and reduced speeds in school and playground zones.

### **ADMINISTRATION RECOMMENDATIONS**

That the SPC on Transportation and Transit recommends that Council:

1. Direct Administration to develop a community based, volunteer speed watch program in collaboration with the Calgary Police Service;
2. Receive for information that Administration will:
  - a. continue to investigate new devices to improve driver behaviour in school and playground zones; and
  - b. continue to support traffic safety education programs related to school and playground zones.

### **PREVIOUS COUNCIL DIRECTION / POLICY**

On 2013 January 3, Council adopted Notice of Motion NOM2013-01, Playground/School Zone Safety (Attachment 1) to investigate “alternative measures, including but not limited to rumble strips, to improve driver awareness of entering playground zones and school zones, and develop options based on best practices and experience in other jurisdictions,” and “report back to Council through the SPC on Transportation & Transit with findings of the investigation and findings for a pilot project, including budget requirements, for consideration by Council no later than 2013 May.”

On 2013 June 10, Council directed Administration, through report TT2014-0362 to “conduct a one year trial of treatments to increase driver awareness of entering school/playground zones, and report back to the SPC on Transportation and Transit on the findings of the trial by 2014 December.”

### **BACKGROUND**

The City of Calgary uses a number of different approaches to reduce speed and improve driver compliance and safety, including:

- Traffic calming measures (curb bulbs, etc.)
- Enforcement and education programs
- Data collection to identify areas of concern
- Signage and warning devices

Signage and warning devices work well for motorists who are willing to obey road signs, and a good example are iSLOW signs that flash to motorists who are exceeding the speed limit. In 2014 Roads examined 30 new measures (Attachment 1) that may be suitable in Calgary. These measures were specifically identified to improve safety in playground and school zones. In report TT2013-0362, eight measures were identified as having the highest potential for

## PLAYGROUND AND SCHOOL ZONE AWARENESS UPDATE

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improving the awareness of playground and school zones, rumble strips were ruled out of the trial at that time. These measures were:

- Traffic cones with reflective spinning anemometer (traffic cones)
- Neighbourhood speed watch program (speed watch)
- Reflective tape on playground/school zone sign poles (reflective tape)
- Double signing at start of playground/school zones (double signs)
- Larger playground/school zone signs (larger signs)
- Multiple playground/school zone signs within a zone (multiple signs)
- Zone ahead signs (zone ahead signs)
- Road marking stencils (road markings)

### INVESTIGATION: ALTERNATIVES AND ANALYSIS

The eight measures were tested across thirty sites, with six sites receiving no treatment to act as controls. Despite best efforts to select similar sites for the study, there were some locations that had higher or lower initial compliance rates. Though the study determined physical treatments had small impacts on behaviour, findings did indicate that treatments were more effective in zones with an initially low compliance rate, and less effective where compliance was high to begin with. Another finding was that compliance increased in the control sites, which indicates that current education and awareness campaigns are effective. The treatments and results are summarized below:

**Table: Speed, Compliance, and Benefit Cost Findings**

Measure	Rank	Avg. Speed change (km/h)	85% Speed change (km/h)	Driver Compliance Change
Speed watch	1	-2.75	-2.50	+19%
Cones	2	-2.50	-2.50	+15%
Double signing	3	-1.50	-1.13	+10%
Do Nothing	-	-1.14	-2.07	+9%
Road markings	4	-1.00	-3.20	+4%
Multiple signs	5	-0.30	-0.20	+4%
Bigger signs	6	-0.40	-0.10	+3%
Reflective tape	7	+0.17	-0.17	+1%
Ahead signs	8	+0.83	-0.17	-2%

To supplement the data and develop an understanding of driver's opinions of the top four performing treatments a driver intercept survey was conducted in partnership with the Calgary

## **PLAYGROUND AND SCHOOL ZONE AWARENESS UPDATE**

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Police Service. The survey results indicated that traffic cones were the most visible measure to attract driver attention (noticed by 96.3% of drivers) followed by the speed watch program and road markings (noticed by 72.6% and 68.5% of drivers, respectively). The least visible measure was double signs; only 34.5% of drivers noticed this measure. Among 212 respondent drivers, 42.9% knew the correct zone timing and 57.1% gave incorrect zone hours; this indicated room for improvement with education.

With driver input, trial data and the costs of each measure known, a benefit-cost analysis was done to evaluate the economic effectiveness of each treatment. The cost of each treatment was based on the capital cost spending for the pilot project. The benefit was calculated as the societal savings of reduced collisions due to speed reduction in school and playground zones. The three highest scores were for Double Signage (+14.91), Cones (+10.59) and Road Markings (+8.68). Despite being the most effective treatment, the Speed Watch was found to have a low benefit-cost score (+0.56) because of infrequent operation due to the need for volunteers.

The findings from the trial do not support city-wide implementation of any one traffic treatment. The speed watch program was found to be the most effective measure for reducing speed in school and playground zones. This measure requires a volunteer commitment meaning this program should be developed and supported by the City by working with interested communities, schools and volunteer groups. The trial indicates that the use of double signage and road markings may be beneficial as site specific enhancements in zones where compliance is low and geometric configuration is appropriate.

### **Stakeholder Engagement, Research and Communication**

Internal stakeholders including representatives from the Calgary Fire Department, Calgary Police Services, Calgary Transit and Transportation Planning assisted with developing and evaluating the list of candidate supplemental treatments. The Alberta Motor Association and the Calgary School Board were contacted and agreed to participate as stakeholders and advisors for the recommended trials. Over two hundred citizens were engaged through the intercept survey, carried out at numerous treatment sites.

Information about the trial and any new treatments to be implemented will be communicated through online information and public education campaigns.

### **Strategic Alignment**

Enhancing safety on Calgary roads through supplemental treatments, programs and educational initiatives aligns with The City of Calgary 2020 Sustainability Direction objectives and Calgary Transportation Plan goals to provide safe, reliable and affordable public infrastructure.

### **Social, Environmental, Economic (External)**

Increased awareness of and compliance with reduced speeds in school/playground zones supports healthy communities by enhancing safety in areas where children often gather.

## **PLAYGROUND AND SCHOOL ZONE AWARENESS UPDATE**

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Increased safety on Calgary roads supports use of active modes of travel and reduces societal costs associated with traffic collisions.

### **Financial Capacity**

#### **Current and Future Operating Budget:**

The impact to future operating budget, based on the recommendations in this report can be accommodated within the existing Roads operating budget.

#### **Current and Future Capital Budget:**

The impact to future capital budget, based on the recommendations in this report can be accommodated within existing Roads capital budget.

### **Risk Assessment**

Risks associated with the recommendations in this report revolve primarily around the use of volunteers to carry out traffic calming initiatives. To mitigate this risk, a program would be developed in collaboration with the Calgary Police Service and appropriate training and safety materials would be provided to all volunteers.

#### **REASON(S) FOR RECOMMENDATION(S):**

The findings in the trial do not support the city-wide implementation of any investigated treatment for the enhanced identification of school and playground zones. The recommendations acknowledge this and identify that four of the studied treatments should be used in locations where they are most appropriate and effective.

### **ATTACHMENT**

Playground and School Zone Awareness Pilot Project: Results and Recommendations