

# ***LONG-TERM EFFECTIVENESS OF RADAR SPEED DISPLAY BOARDS IN SCHOOL ZONES***

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# Introduction

- Fredericton piloted Radar Speed Display Boards at two schools in 2009
- Initial results were positive
- Concern over long-term impact
- UNB monitored speed profiles for 4 yrs.



# Background

- Widespread use of Speed Display Boards
  - Construction zones
  - Transition zones
  - Sharp curves
  - School zones, etc.
- Generally found to have positive impacts but little known on **long-term**...esp. permanent installations

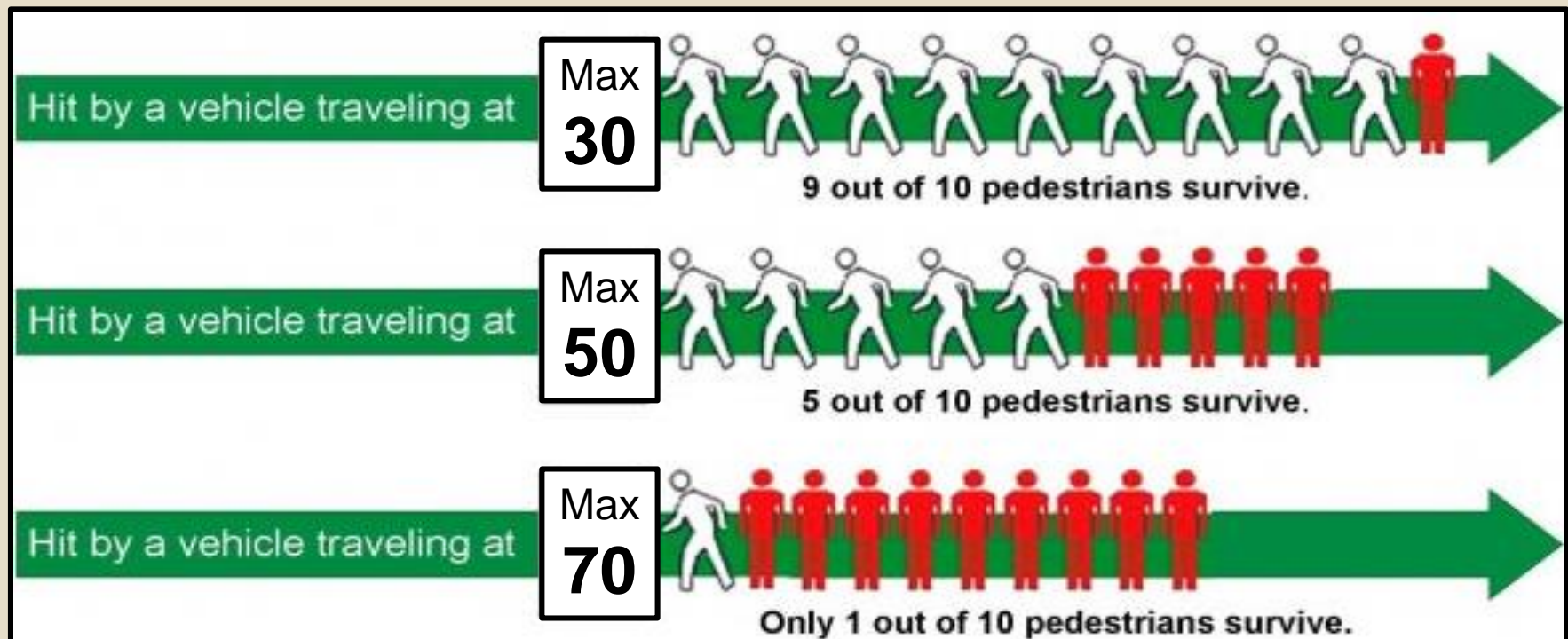


# Premise



Speed Reduction translates into improved Safety RISK

**RISK = Frequency & Severity**



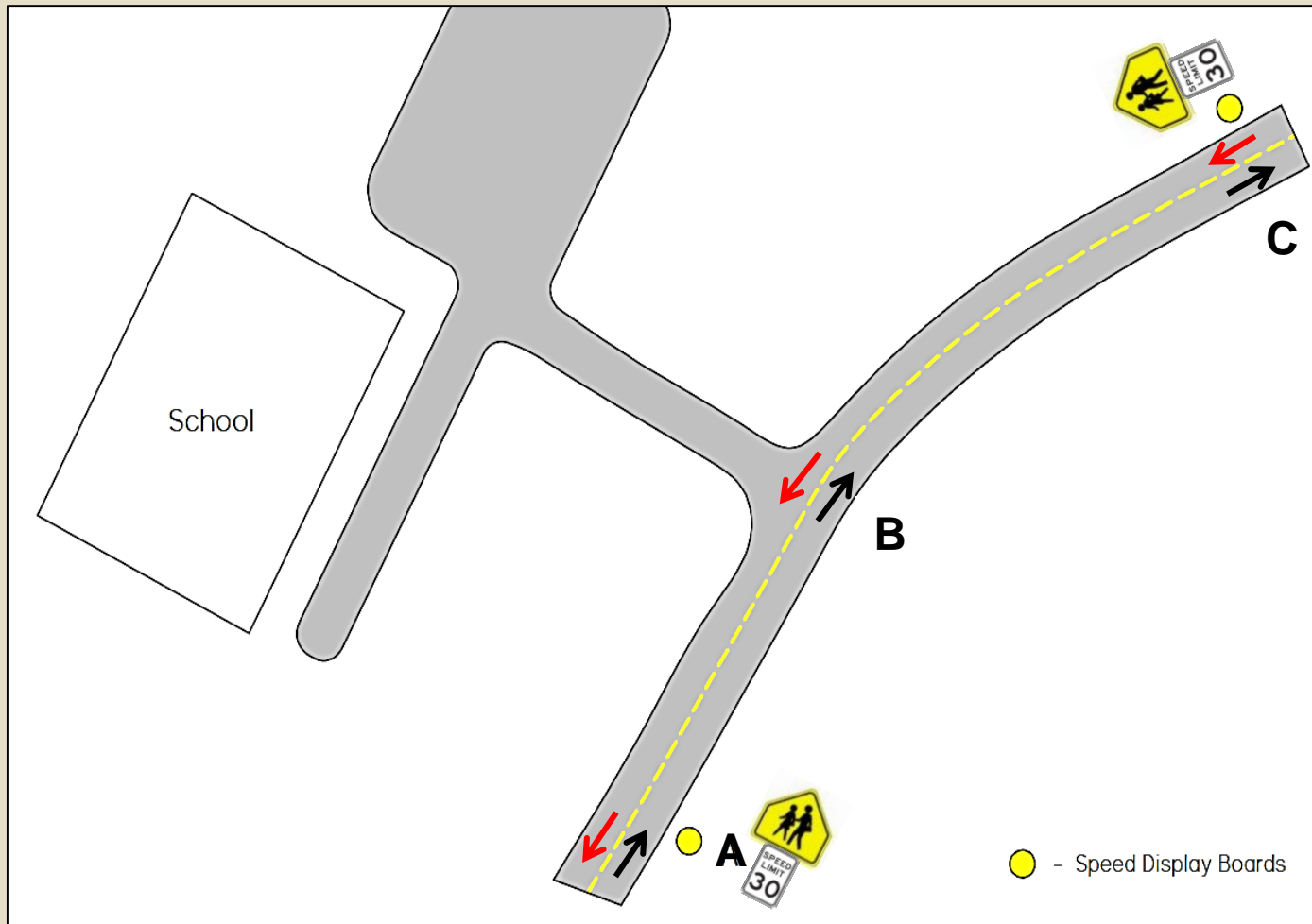
# Methodology



- Speed profiles through school zones
  - Bliss Carman Middle School
  - Devon Middle School
- Fall 2009
  - Before
  - 1 week after installation
  - 2 months
  - 1 year
  - 4 years



# Methodology

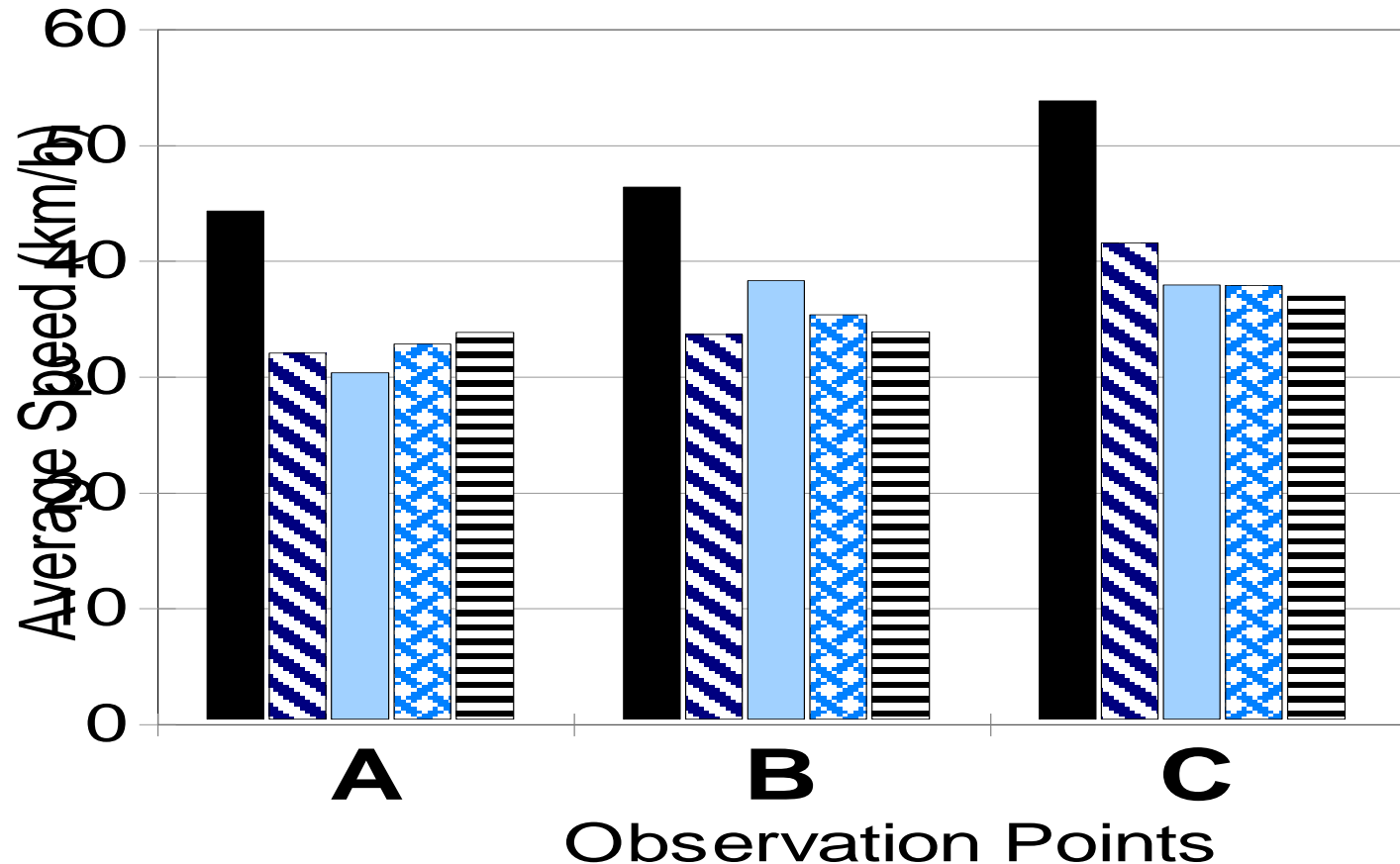


## Vehicle Speeds

- \* Peak & Off-Peak
- \* n= 40 veh. min.
  - each point
  - each direction

# Results -Mean Speeds

## Bliss Carmen Middle School

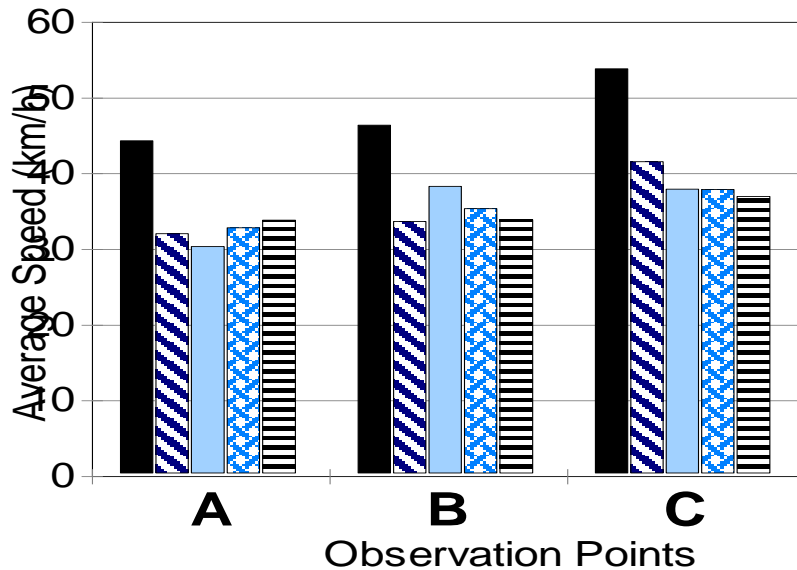


■ Before ■ 1 week ■ 2 months ■ 1 Year ■ 4 Years

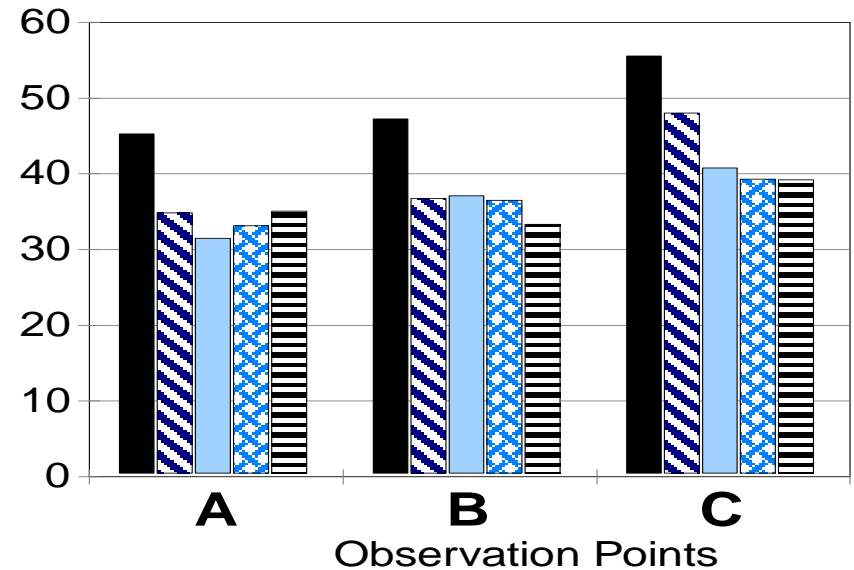
# Results -Mean Speeds



**Bliss Carmen Middle School**



**Bliss Carmen Middle School**



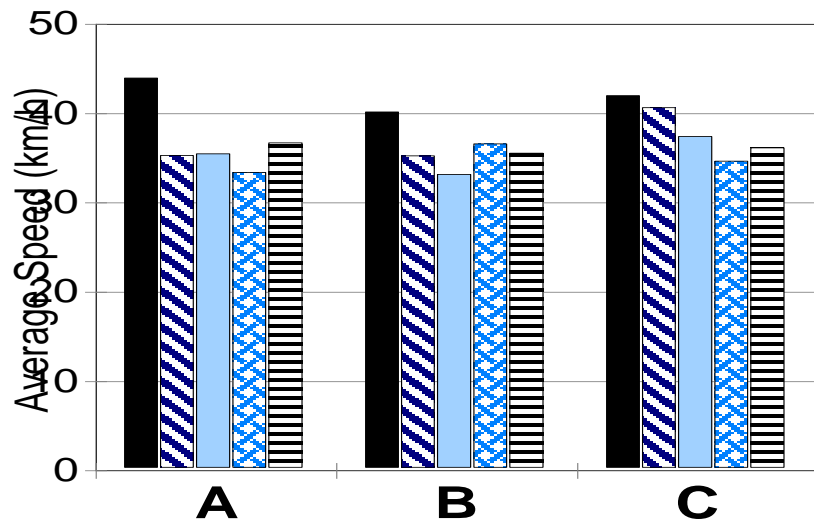
Before
  1 week
  2 months
  1 Year
  4 Years



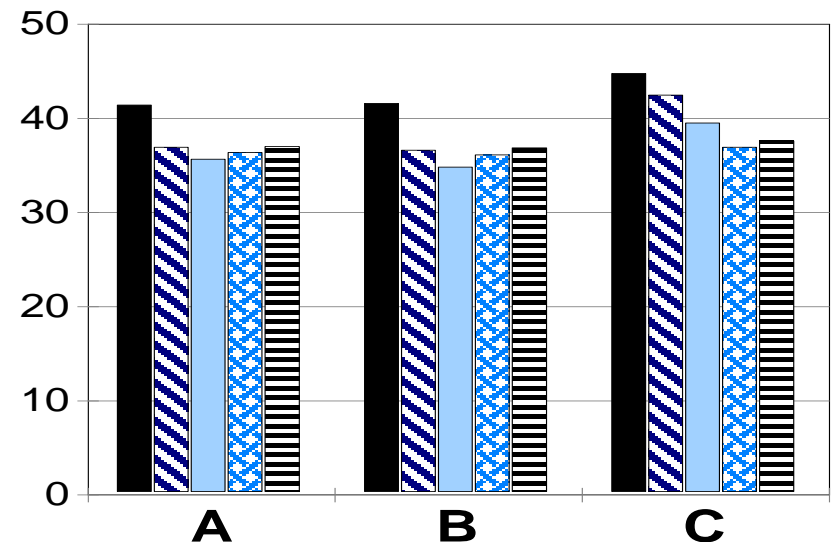
# Results -Mean Speeds



Devon Middle School [pe]



Devon Middle School [non-pe]



Before
  1 week
  2 months
  1 Year
  4 Years

# Results -Mean Speeds

**Table 1: Average Speeds (km/h) for Bliss Carman Middle School – Peak Period**

Location	Before	After 1-Week	After 2-Months	After 1-Year	After 4-Years
<b>A</b> inbound	44.3	28.0	27.3	29.6	32.0
<b>A</b> outbound	44.1	35.9	33.2	35.8	35.4
<b>B</b> wb	45.4	31.1	35.2	33.0	34.1
<b>B</b> eb	47.1	36.0	41.2	37.5	33.4
<b>C</b> inbound	52.7	40.8	33.5	34.9	36.5
<b>C</b> outbound	54.7	42.1	42.1	40.6	37.2
<b>Average:</b>	<b>48.0</b>	<b>35.6</b>	<b>35.4</b>	<b>35.2</b>	<b>34.8</b>

	Before vs. 1-week	Before vs. 2-Months	Before vs. 1-Year	Before vs. 4-Years	2-Months vs. 1-Year	1-Year vs. 4-Years
<b>t<sub>calc</sub></b> *	<b><u>10.95</u></b>	<b><u>5.63</u></b>	<b><u>7.67</u></b>	<b><u>9.80</u></b>	0.17	0.42

\* **Bold and underlined** = statistically significant difference in means at 5% level of significance

# Results -85<sup>th</sup> Percentile Speeds

**Table 5: 85<sup>th</sup> Percentile Speeds (km/h)**

	<b>Before</b>	<b>After 1-Week</b>	<b>After 2-Months</b>	<b>After 1-Year</b>	<b>After 4-Years</b>
<b>Carman School</b>					
Peak	55.43	41.72	41.72	40.34	40.67
Non-peak	56.05	47.05	43.00	42.75	42.61
<b>Average:</b>	55.74	44.38	42.36	41.54	41.64
<b>Devon School</b>					
Peak	50.46	44.72	40.33	40.60	43.03
Non-peak	50.54	47.10	44.33	41.13	45.22
<b>Average:</b>	50.50	45.91	42.33	40.86	44.12

# Results -Speed Variance



- No statistically significant changes
- At 4-year point:  
9 of 12 observation points had reductions

# Conclusions



- Overall mean speed reductions at 4-year point:
  - 13.4 and 5.2 km/h
- Brought two site **means** to 36 and 37 km/h
- Brought two site **85<sup>th</sup> Percentiles** to 42 and 44 km/h
- Variances mainly reduced although not stat. significantly
- POSITIVE long-term effectiveness

# Recommendations



- Transferability of findings to other contexts unknown
- Proliferation of use on effectiveness is unknown
- Development of **warrant system** useful
- Impact on collision **Frequency** still unknown

# Acknowledgements



- NSERC for funding this study



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***Fredericton***



