

Presentation on 2014 Traffic Safety and Electronic Sign Studies

Sign Variance Committee

January 30, 2020

Outline

- Background
- Public Opinion Poll – Attitudes towards illuminated and electronic signs
- Public Opinion Poll –Driver Distraction
- Traffic Safety Study – Literature Review
- Traffic Safety Study – Signalized Intersections
- Traffic Safety Study – Expressways/Highways
- Relevance to SVC Responsibilities

Public Opinion Poll

Public Opinion Poll

- Ipsos Reid was commissioned by the City of Toronto to determine the views of residents across the City with respect to illuminated and electronic signs.
- The poll was intended to gain a better understanding of the public attitudes and opinions on:
 - Different types of electronic and illuminated signs;
 - The hours of operation for operating electronic and illuminated signs;
 - Perceptions of driver, cyclist and pedestrian distraction with respect to illuminated and electronic signs; and,
 - The acceptability of different types of electronic and illuminated signs in residential, commercial, and other areas of the city.

Public Opinion Poll

- Overall, the poll found that Toronto residents are accepting of illuminated and electronic signs and perceive them to be a natural accessory in large cities like Toronto.
 - 70% of respondents agree that illuminated and electronic signs are a normal part of the public landscape in large cities.
- The public opinion poll suggested that the majority (60%-81%) of those surveyed accept all types of signs in commercial or industrial areas as well as near community centers and other public spaces.

Public Opinion Poll

- In residential areas, fewer than 45% of those surveyed find it acceptable to locate any type of electronic or illuminated sign in their neighborhood, on their street, or in residential areas.
 - This was found to be particularly true for electronic static and electronic moving signs with fewer than 20% of residents feeling that these types of signs are acceptable in residential areas or on their street.

Findings from Public Opinion Poll – Poll Results on Distraction While Driving

- As part of a public opinion poll conducted by Ipsos Reid, respondents were asked to consider a number of distractions typically faced by a driver and asked to rate their level of distraction.
- The question asked as part of the poll was:
 - *Thinking about when you are driving in the city, how distracting do you find the following?*
- Approximately half of those polled find electronic signs distracting when they are driving (52%), on par with GPS and road maps (50%), while traditional non-electric signs were found to be the least distracting (18%).

Findings from Public Opinion Poll – Poll Results on Distraction While Driving

Item	Very Distracting (%)	Somewhat Distracting (%)	Not Very Distracting (%)	Not at all Distracting (%)	% Somewhat or Very Distracting
Cell Phones	44%	30%	16%	10%	74%
Pedestrians	15%	41%	32%	12%	56%
Electronic Signs	13%	39%	37%	12%	52%
GPS/Road Maps	12%	38%	35%	16%	50%
Adjusting Vehicle Controls	5%	35%	42%	18%	40%
Passengers	4%	34%	47%	15%	38%
Scenery	3%	24%	48%	25%	27%
Traditional (non-electronic signs)	3%	15%	57%	25%	18%

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Adjusting Vehicle Controls	5%	35%	42%	18%	40%
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Traditional (non-electronic signs)	3%	15%	57%	25%	18%

Traffic Safety Studies

NCHRP Report and Literature Review (2013)

- A literature review was completed on behalf of the City in order to review the safety impact(s) of Electronic Static Signs.
- The 2009 study: “Safety Impacts of the Emerging Digital Display Technology for Outdoor Advertising Signs” published by the National Cooperative Highway Research Program (“the NCHRP Report”) was used as the baseline for this review.
 - This document is considered a landmark report due to it’s comprehensive review of 45 studies completed between 1983 and 2009.
- To update this literature review, seven additional comprehensive studies completed between 2009 and 2013 were also reviewed.

NCHRP Report - Aspects of Electronic Signs recommended to be regulated:

Electronic Sign Attribute	Description of Attribute	Currently Regulated by Chapter 694
Image dwell time	The length of time that an image is displayed on an electronic sign.	Yes
Image transition time	The length of time it takes the image on a sign to change to another image.	Yes
Transition effects	Changes or effects displayed during the transition of one message to another.	Yes
Message sequencing	Displaying two or more images in sequence to form a continuous message or advertisement.	Yes
Sign face area	The size of the sign face displaying the electronic image.	Yes
Luminance levels	The brightness of a sign in daytime and/or night time conditions.	Yes
Failure setting	Should an electronic sign malfunction, a default setting for the sign.	Yes
Minimum spacing requirements	The distance between two signs displaying electronic copy.	Yes, for third party signs
Proximity to traffic control points	The location of a sign relative to intersections or other driver decision points.	Yes
Time limited permit	The length of time that a sign permit for an electronic sign remains valid for.	Yes

NCHRP Report - Aspects of Electronic Signs recommended to be regulated:

There are two aspects of electronic signs mentioned in the NCHRP report, as potentially suitable for regulation, which are not the subject of express regulation in Toronto's Sign By-law:

1. Regulations which specifically regulate the quantity of information included within a sign's display of specific sign copy; and,
 2. Regulations controlling the design of the presentation of the information as sign copy.
- The Sign By-law contains very few regulations concerning the content of sign copy as these can raise unique concerns with respect to limiting expressive freedoms protected *Canadian Charter of Rights and Freedoms*.

Traffic Studies completed since the NCHRP Report:

- Most of the literature published after the NCHRP Report have come to conclusions consistent with the NCHRP Report:
 - That electronic signs may contribute to driver distraction more than other types of signs; however,
 - No specific locations have been identified where it was established that a electronic sign, or electronic signs, created a statistically significant effect on collisions.
- Multiple “real world” difficulties with capturing impact on the issue of collisions have been identified.

Statistical Analysis of Collisions in Toronto:

- On behalf of the City, a statistical analysis of collisions before and after electronic signs were installed was performed.
- The study methods were outlined in the American Association of State Highway Traffic Officials (AASHTO) Highway Safety Manual.
- Six to seven years of collision data was analyzed for 12 locations throughout the city.
- The following situations were analyzed:
 - Electronic signs at a signalized intersection
 - Electronic signs installed next to an Expressway/Highway

Statistical Analysis of Collisions in Toronto – Signalized Intersections

- An electronic sign was installed at the intersection of Victoria Park and Sheppard Avenue in the City of Toronto.
- A total of 426 collisions at the intersection of Victoria Park Avenue and Sheppard Avenue that took place between 2004 – 2010 were analyzed as part of this review.
- The results indicated that there was a 3.3% increase in the number of collisions after installing the sign.
- The increase was found to be statistically insignificant.
- Result: Absence of evidence concerning impact of this sign on collision frequency.

Statistical Analysis of Collisions in Toronto – Expressways and Highways

- Ten electronic signs were installed along the Gardiner Expressway and Highway 27 between 2009 and 2010.
- A total of 1,727 collisions along the FG Gardiner Expressway and Highway 27 that took place between 2006 and 2013 were analyzed for this review.
- The results indicated that there was a 4% decrease in the number of collisions after the electronic signs were installed and the decrease was found to be statistically insignificant.
- Result: Absence of evidence concerning impact of these signs on collision frequency.

Relevance to Sign Variance Committee Responsibilities

Relevance to SVC Responsibilities

- Studies are largely of little to no relevance for SVC.
- To establish if a variance can be granted, nine criteria must be met.
- The aforementioned studies have limited direct impact on any of the criteria.
- The one criteria that has a superficial connection with the aforementioned Studies is the criteria at §694-30.A.(6)
 - Under this criteria the obligation is to establish that proposed sign or signs **will not adversely affect public safety**, including traffic and pedestrian safety;

Relevance to SVC Responsibilities

- The aforementioned Studies do not in themselves answer the criteria:
 - Studies largely indicate that there is evidence of increased "distraction"
 - Studies indicate that the issue of distraction is only one factor in the potential for an adverse impact on collisions, (and other potential safety concerns).
 - Studies have not located evidence to definitively link a specific sign or signs to an increase in "collisions."
- "Absence of evidence" is not "evidence of absence"

Relevance to SVC Responsibilities

- To satisfy criteria the practical obligation is to show proposed sign or signs **will not adversely affect public safety**, including traffic and pedestrian safety.
 - Overall, the various Study results do not answer the issue, but do indicate background considerations showing:
 - Evidence of increased "distraction"
 - Distraction is one factor in the potential for an adverse impact on collisions, (and other potential safety concerns) – but is not definitive;
 - The potential concern of Signs on safety can be addressed by municipal regulations; and,
 - No specific incident where a sign or sign has lead to statistically significant impact on collisions has been definitively located.
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Relevance to SVC Responsibilities

- Overall, the Studies show some potential for an adverse public safety outcomes with Electronic Signs, and lack of definitive examples establish specific signs with an adverse impacts on collision rates in the immediate area.
- City has regulations of the type intended to mitigate/eliminate potential risk of this sort. Variances are variations to the City's regulations.
- The existence of one or more studies do not in themselves satisfy the criteria.
- Studies essentially confirm that a potential for Electronic Signs to have an adverse effect on public safety exists, and that the party seeking a variance needs to address it light of the relevant concerns and regulations.

Questions and Discussion