Important aspects of the national safety guidelines for digital and projected advertising displays

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Outline

Project background

- Describe scope, methodology, and definitions

Important aspects of the guidelines

- Guiding principles
- Design domain concept
- Differentiating on- and off-premise signs
- Safety analysis approach

Summary and conclusion

Open discussion

Important aspects of the national safety guidelines for digital and projected advertising displays
Project background

• Digital and projected advertising displays (DPADs):
  – Commercial messages
  – Stationary signs
  – Able to display dynamic content
  – Located on public or private property
• On- and off-premise in urban, suburban, rural areas
• Excludes aesthetic, economic, and nuisance issues
• Specific to unique DPAD characteristics
Project background

Important aspects of the national safety guidelines for digital and projected advertising displays

Source: MORR Transportation Consulting Ltd., 2013
Project background

Important aspects of the national safety guidelines for digital and projected advertising displays
Aspect 1 – Guiding principles

1. Safety
2. Consistency
3. Specificity
4. Evidence-based
5. Pragmatism
# Guiding principle: Specificity

<table>
<thead>
<tr>
<th>Specific to DPADS</th>
<th>Applicable to all signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animation</td>
<td>Content</td>
</tr>
<tr>
<td>Frame duration</td>
<td>Colour</td>
</tr>
<tr>
<td>Transition time and effects</td>
<td>Dimensions</td>
</tr>
<tr>
<td>Message sequencing</td>
<td>Lateral placement</td>
</tr>
<tr>
<td>Text scrolling</td>
<td>Vertical placement</td>
</tr>
<tr>
<td>Brightness</td>
<td>Orientation</td>
</tr>
<tr>
<td>Spacing / Density</td>
<td>Sight distance to sign</td>
</tr>
</tbody>
</table>

Important aspects of the national safety guidelines for digital and projected advertising displays
## Guiding principle: Consistency

<table>
<thead>
<tr>
<th>Specific to DPADS</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animation</td>
<td>Prohibit</td>
</tr>
<tr>
<td>Frame duration</td>
<td>Variable</td>
</tr>
<tr>
<td>Transition time and effects</td>
<td>Prohibit</td>
</tr>
<tr>
<td>Message sequencing</td>
<td>Prohibit</td>
</tr>
<tr>
<td>Text scrolling</td>
<td>Prohibit</td>
</tr>
<tr>
<td>Brightness</td>
<td>0.3 fc</td>
</tr>
<tr>
<td>Spacing / Density</td>
<td>Variable</td>
</tr>
</tbody>
</table>

Important aspects of the national safety guidelines for digital and projected advertising displays
Important aspects of the national safety guidelines for digital and projected advertising displays.
Design domain concept

<table>
<thead>
<tr>
<th>Issue</th>
<th>More conservative</th>
<th>Options</th>
<th>Less conservative</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of specific issues to consider</td>
<td>Lowest probability of negative road safety impacts</td>
<td>Low to moderate probability of negative road safety impacts</td>
<td>Highest probability of negative road safety impacts</td>
<td>Recommended approach for each issue</td>
</tr>
<tr>
<td>Lowest level of industry support expected</td>
<td>Moderate to high level of industry support expected</td>
<td>High level of industry support expected</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Aspect 3 – Differentiating on- and off-premise signs

Important aspects of the national safety guidelines for digital and projected advertising displays
Question: What is the road safety impact of DPADs?
Answer: Can be defined as the probability of being involved in a crash.
Problem: Cannot measure safety directly, must use a surrogate.

Question: How many crashes were caused by DPADs?
Answer: The number of crashes where DPAD distraction was a factor.
Problem: This data does not exist.

Question: What is the increased risk of a crash due to DPAD distraction?
Answer: 1.4x for 1-2 glances away from road; 2.3x for more than 2 glances.
Problem: Glance behaviour towards DPADs is unknown.

Question: What is the glance frequency towards DPADs?
Solution: MORR developed a method for estimating glance behaviour as a function of speed, sign density, frame duration, traffic volume.
Safety performance = \( f(\text{collision frequency}) \)

Collision frequency = \( f(\text{collision risk}) \)

Collision risk = \( f(\text{glance frequency}) \)

Glance frequency = \( f(\text{road type, speed, sign density, frame duration, volume}) \)

FHWA Safety Surrogate Assessment Model (2008)

100-car naturalistic driving study
Summary & concluding remarks

• 5 guiding principles key to guidelines; consistency

• Design domain provides flexibility & customization

• Differentiating on/off premise DPADs critical for satisfying commercial interests and safety concerns

• Traditional road safety approaches are insufficient
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