

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

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

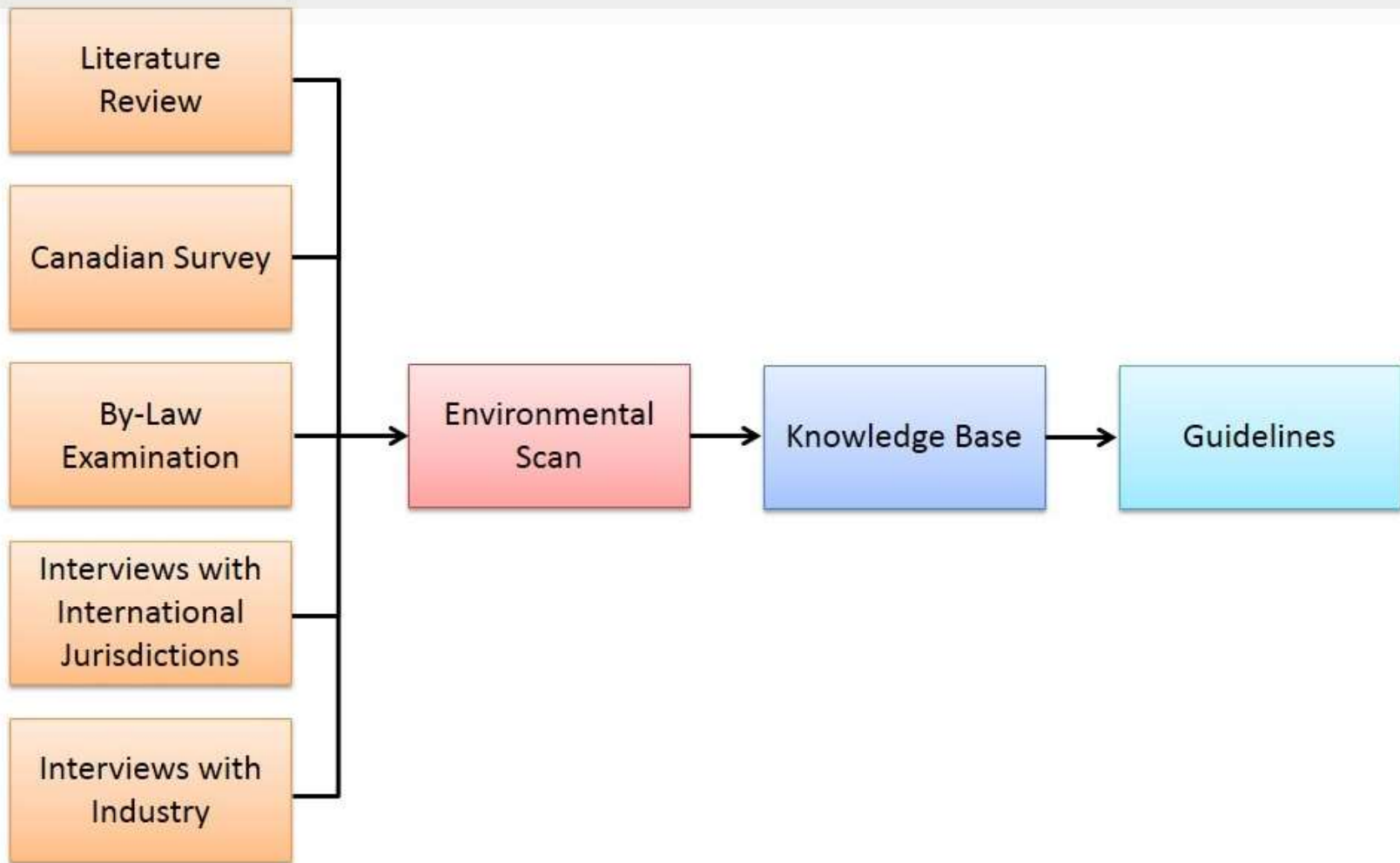
Project background



Source: MORR Transportation Consulting Ltd., 2013

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

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

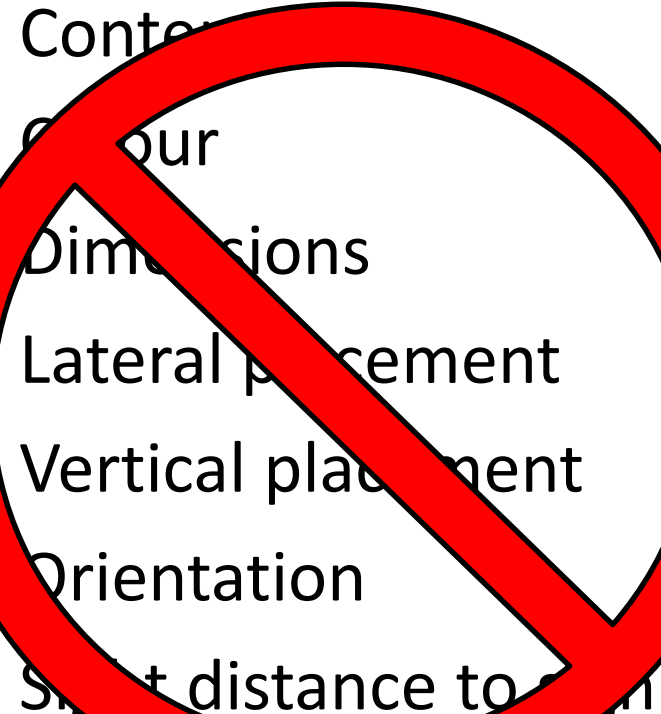
Guiding principle: Specificity

Specific to DPADS

Animation
Frame duration
Transition time and effects
Message sequencing
Text scrolling
Brightness
Spacing / Density

Applicable to all signs

Content
Colour
Dimensions
Lateral placement
Vertical placement
Orientation
Street distance to sign



Guiding principle: Consistency

Specific to DPADS

Recommendation

Animation

Prohibit

Frame duration

Variable

Transition time and effects

Prohibit

Message sequencing

Prohibit

Text scrolling

Prohibit

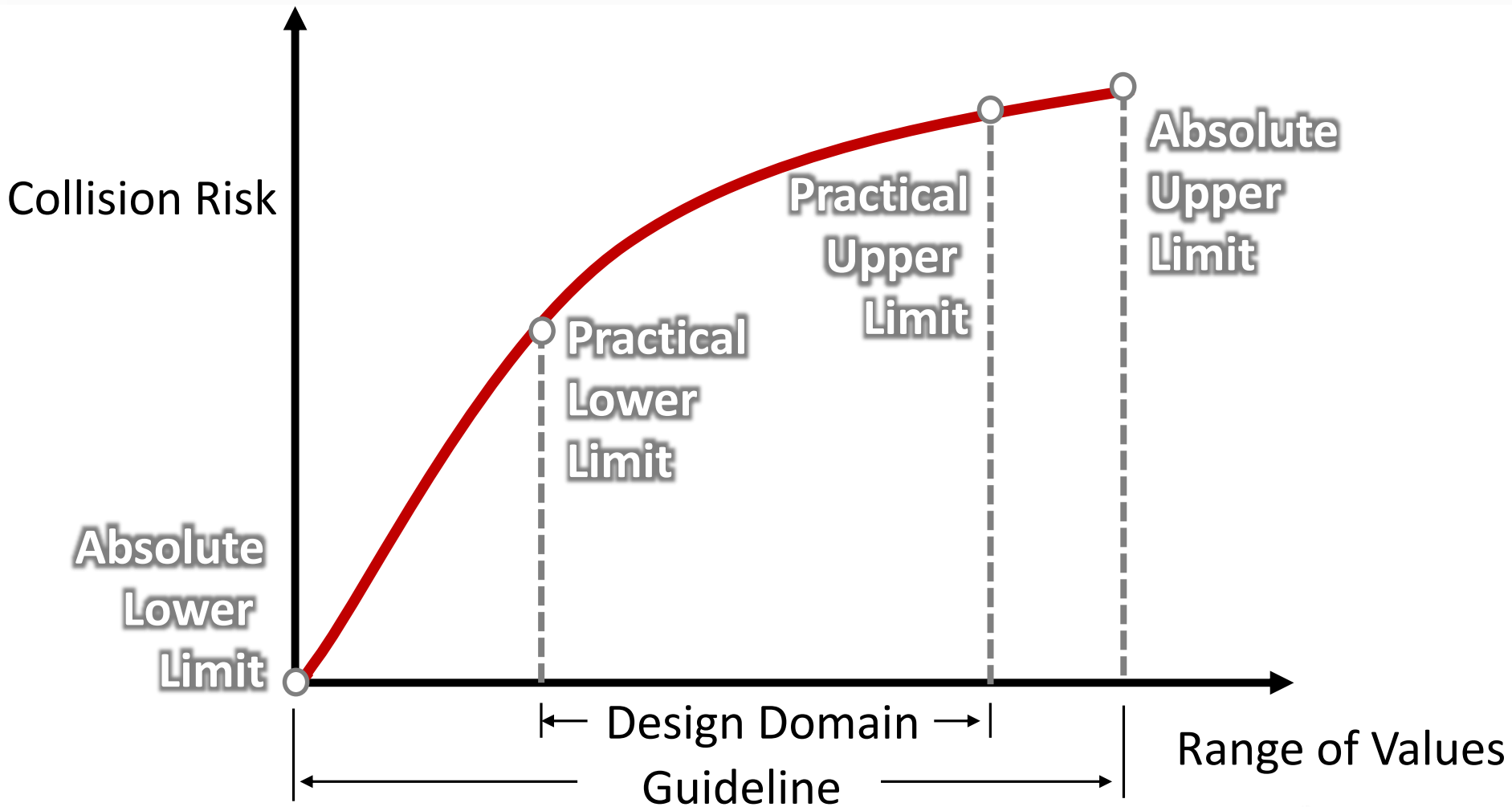
Brightness

0.3 fc

Spacing / Density

Variable

Aspect 2 - Design domain concept

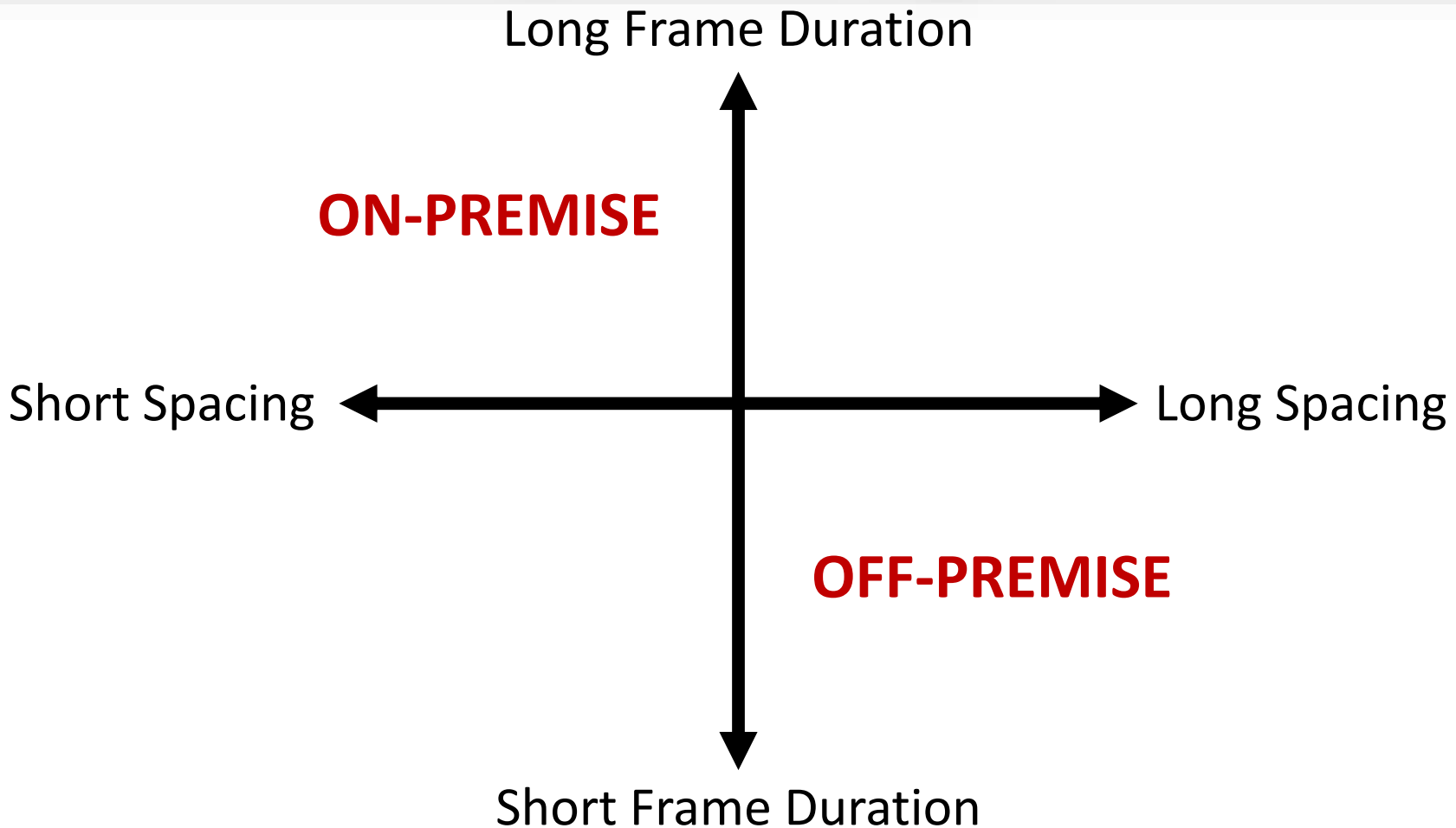


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Design domain concept

Issue	Options			Recommendation
	More conservative	↔	Less conservative	
List of specific issues to consider	<p>Lowest probability of negative road safety impacts</p> <p>Lowest level of industry support expected</p>	<p>Low to moderate probability of negative road safety impacts</p> <p>Moderate to high level of industry support expected</p>	<p>Highest probability of negative road safety impacts</p> <p>High level of industry support expected</p>	Recommended approach for each issue

Aspect 3 – Differentiating on- and off-premise signs



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Aspect 4 – Safety analysis approach

Safety Performance

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.

Collision Frequency

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.

Collision Risk

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.

Glance Behaviour

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 analysis approach

Safety
Performance

Safety performance = $f(\text{collision frequency})$

Collision
Frequency

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

FHWA Safety Surrogate
Assessment Model (2008)

Collision
Risk

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

100-car naturalistic driving study

Glance
Behaviour

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

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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

Open discussion

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