ROADWAY ADVERTISING AND TRAFFIC SAFETY

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CATSS-UTC Symposium, Orlando, FL
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• Investigate links between Advertising Billboards-Distraction-Traffic Safety Risk

• Synthesis of studies on billboard advertising and traffic safety

• On-going efforts to address issue at UAB and FIU
ROADSIDE ADVERTISING OPTIONS:
Conventional Billboards

• Static billboards
  • the oldest form of mass media
  • 400,000 in US alone

• Advantages:
  • relatively low entry and operating costs
  • ability to appeal to the local market
• Utilize light-emitting diode (LED) technology to provide vivid displays that can be updated every few seconds using computer input.
  • Fast growing market
  • 4,000 in US

• Advantages:
  • single board can advertise to far more clients than a traditional board
  • clients can update their advertisements frequently, and
  • targeted messaging
• Brightness and contrast with surroundings
• Messages changing suddenly
• Large, imposing sizes
• Realistic imagery
• No driver acclimation with message
• Potential for message sequencing
• Potential for interactivity with driver
• Meta-analysis studies
• Crash studies of historical trends
• Laboratory studies
• Naturalistic studies of driving behavior
• Farbry et al., 2001
• Wallace, 2003
• Coetzee, 2003
• Birdsall, 2008
• Wachtel, 2009
• Molino et al., 2009 ...

• **Meta-analysis studies** confirmed an association between crash rates and billboards at intersections
Examples include:

- Smiley et al., 2005
- Tantala and Tantala, 2010
- Yannis et al., 2012 ...

- Most crash studies involving statistical analyses of historical data near DBB locations reported no statistically significant relationship with crash occurrence
Examples include:

• Young and Mahfoud, 2007
• Bendak and Al-Saleh, 2010
• Edquist et al., 2011
• Divekar et al., 2012
• Marciano and Yeshurun, 2012 ...
• **Laboratory studies** confirmed that the presence of DBBs decreased driver control, increased mental workload, and increased response time
  
  • Driver response to road signs delayed by .5-1 sec with advertising billboard presence
  
  • DBBs caused drivers to be less observant of stopping cars ahead of them, and contributed to vehicle drifting into adjacent lanes.
Examples include:
• Akagi et al., 1996
• Kettwich et al., 2004
• Beijer et al., 2004
• VA Tech Transportation Institute, 2007
• Lee et al., 2007
• Ballidis, 2012 ...
Naturalistic studies reported mixed findings

- Some concluded that there was no substantial distraction caused by the advertising signs, and that gaze duration towards signs decreases as driving complexity increased.

- Other studies provided evidence of increased number of glances per sign and longer gazes in the presence of DDBs compared to static counterparts.
• Overall, the literature synthesis suggests that there is evidence for a correlation between DDBs and increased driver distraction.

• However, local conditions, experimental settings, and other factors may play a role in the actual impact that advertising DBBs have on traffic safety.

• Existing research is limited due to a lack of standardized methods and practices, data reliability, appropriate assumptions, relevant hypotheses, and objective intentions.
NEW RESEARCH ON THE WAY

DIGITAL ADVERTISING BILLBOARDS AND DRIVER DISTRACTION STUDY

• Project funded by the National Center for Transportation System Productivity and Management (NCTSPM, the Georgia Tech-led UTC)

• UAB and FIU Partnership with support from ALDOT and FDOT
## PROJECT TEAM

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Multi-state and multi-facet approach

• State-of-Practice-Synthesis
• Epidemiological Study
• Survey of Road Users
• Driving Simulator Study
• Task 1: Literature Review [UAB]
• Task 2: Project Advisory Committee [FIU/UAB]
• Task 3: Billboard Location and Crash Data Analysis [UAB/FIU]
• Task 4: Driver Questionnaire Survey [FIU/UAB]
• Task 5: Design of Driving Simulator Experiment [UAB]
• Task 6: Driving Simulator Data Collection and Analysis [UAB]
• Task 7: Technology Transfer [UAB/FIU]
• Task 8: Final Report [UAB/FIU]
• Finalize driver survey instruments
• Distribute survey and summarize responses
• Select appropriate corridors in AL and FL for the crash data analysis
• Obtain IRB clearance and proceed with recruitment of subjects for the driving simulator study
• Update on progress at the Regional UTC Conference April 4-5, 2013.
QUESTIONS AND COMMENTS