presented to

national alliance Highway Beautification Agencies

12th Annual Educational Conference
on the Control of Outdoor Advertising

A STUDY OF THE RELATIONSHIP BETWEEN DIGITAL BILLBOARDS AND TRAFFIC SAFETY

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Background

For almost 30 years, researchers have been trying to determine the effects of commercial electronic variable message signs (CEVMS) on drivers

Findings of Literature Review

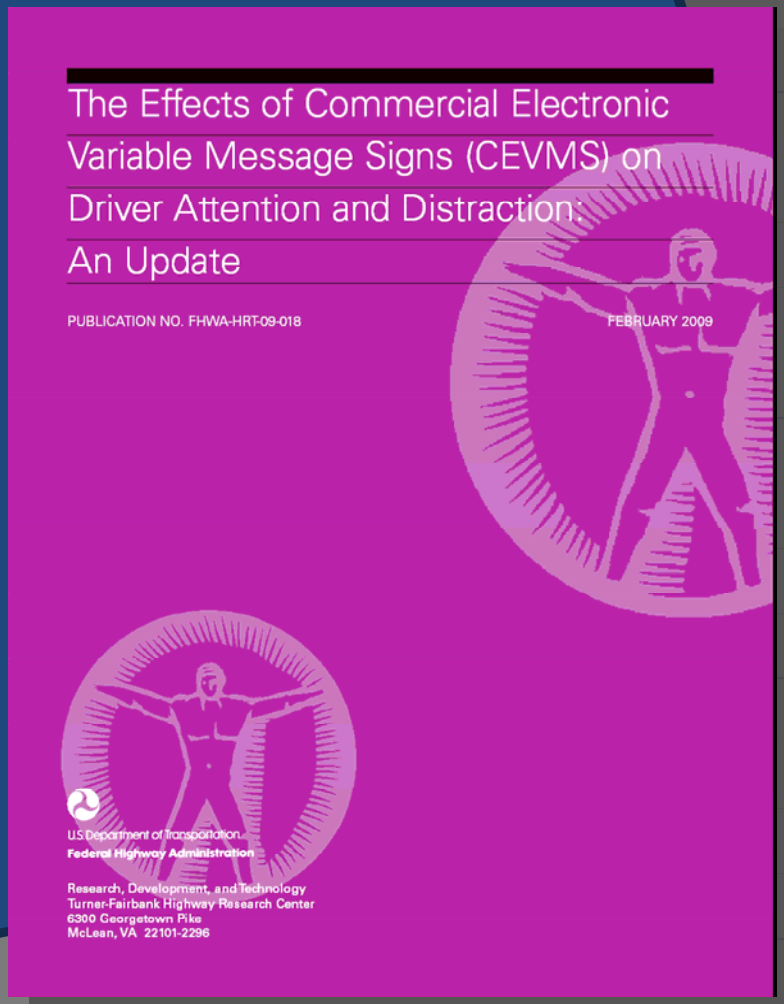
Numerous studies and considerable resources have be directed into examining driver distraction, including the role of billboards.

The Current FHWA Study

"The Effects of Commercial Electronic Variable Message Signs (CEVMS) on Driver Attention and Distraction:

An Update"

(February, 2009)



Findings

- Inconclusive
- More research is needed
- Including a long-range multi-study research program covering a number of years

The Question

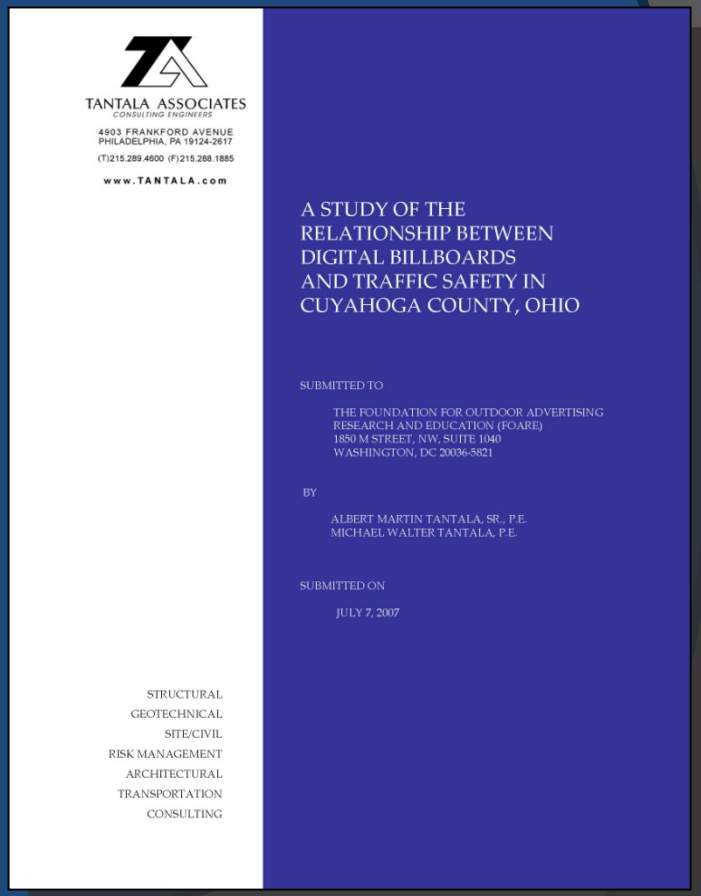
- So what are the effects of commercial electronic variable message signs (Digital Billboards) on drivers?

Accident Analysis Research

- **Tantala**
  - Reviewed accidents data for an equal length of time before and after the installation of digital billboards in Cleveland, OH (2007)
  - **<u>Findings:</u>**
    - No increase in vehicular accidents after the installation of digital billboards
    - Number of accidents are comparable to similar sections of highways without billboards
    - Accidents occur with or without billboards

Critique of the 2007 Cleveland Study

- Amount of data was insufficient
- Only examined Interstates
- Drivers are unlikely to admit distracted by billboard
- Exclusion of data
- Used where the car came to rest *vs* where it started to lose control



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TRANSPORTATION
CONSULTING

A STUDY OF THE RELATIONSHIP BETWEEN DIGITAL BILLBOARDS AND TRAFFIC SAFETY IN CUYAHOGA COUNTY, OHIO

SUBMITTED TO

THE FOUNDATION FOR OUTDOOR ADVERTISING RESEARCH AND EDUCATION (FOARE)
1850 M STREET, NW, SUITE 1040
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SUBMITTED ON

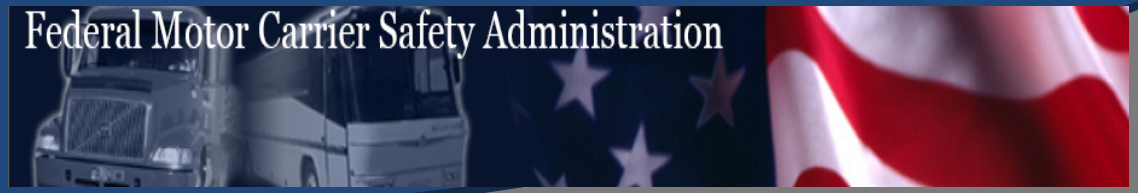
JULY 7, 2007

Crash Data : Important or Irrelevant??

- The government relies on crash data to make decisions, allocate resources, and frame regulation
  - National Highway Traffic Safety Administration

NHTSA
www.nhtsa.gov
National Highway Traffic Safety Administration
Our Mission: Save lives, prevent injuries, reduce vehicle-related crashes

  - Federal Motor Carrier Safety Administration



Accident Data Quality

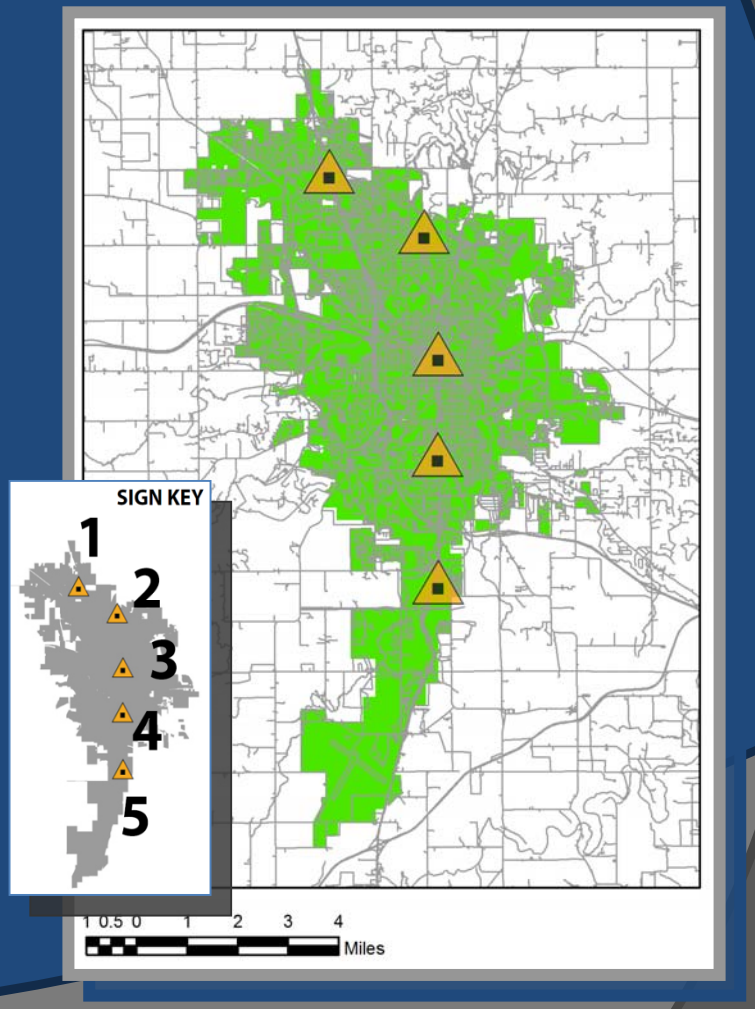
- *Thanks to greater uniformity and advanced* technology, data quality has improved

Overview

Research in MN

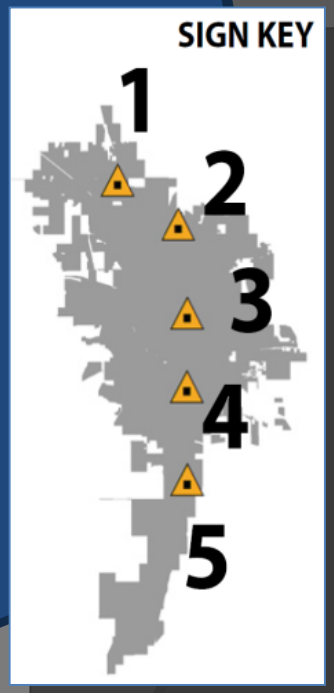
5 digital billboards in Rochester, MN

- **All are 10’6”x 36’**
- **All are free standing structures**
- **Some on local roads**
- **Most converted from existing billboards;**
  - **#3 was new; #5 from a trivision**

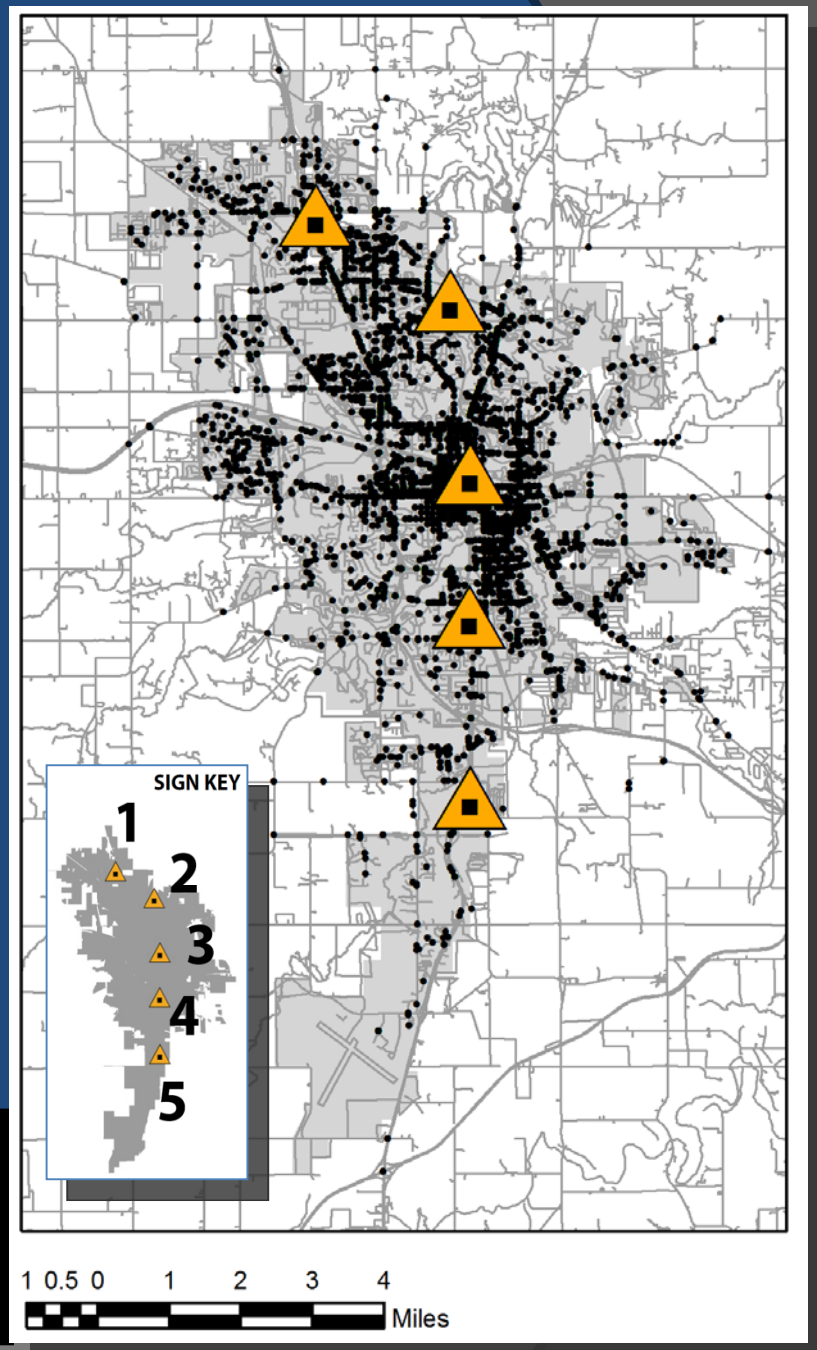


Accident Data Available

Timelines of Digital Conversions and Data Sets



- 18,000 accidents recorded in Rochester over 5 years
- Accidents are recorded for threshold of damage of $1,000 or more in property damage and/or if injuries occur
- Conforms to ANSI Standard

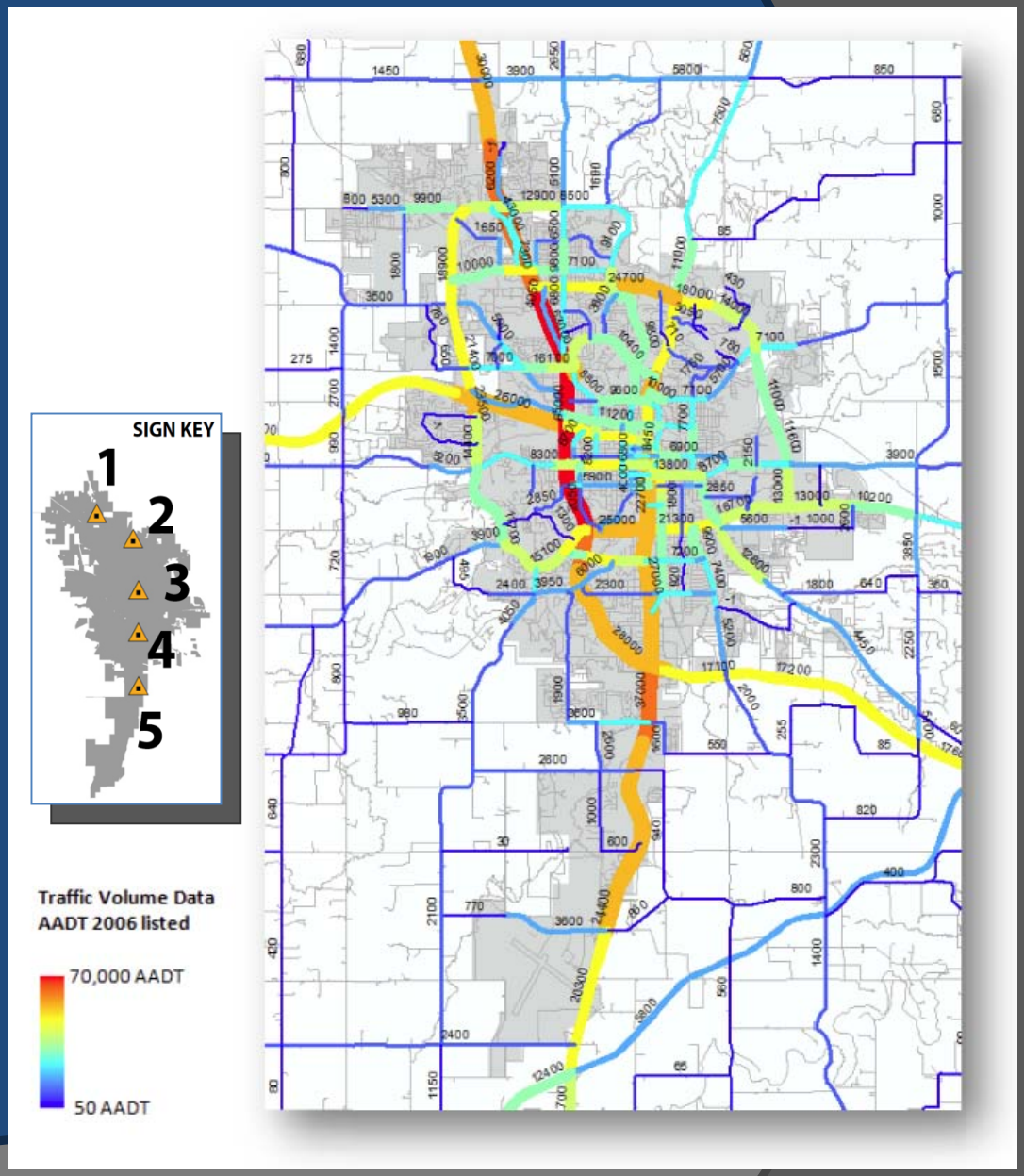


Accident and Billboard Locations (between 2004-2009)

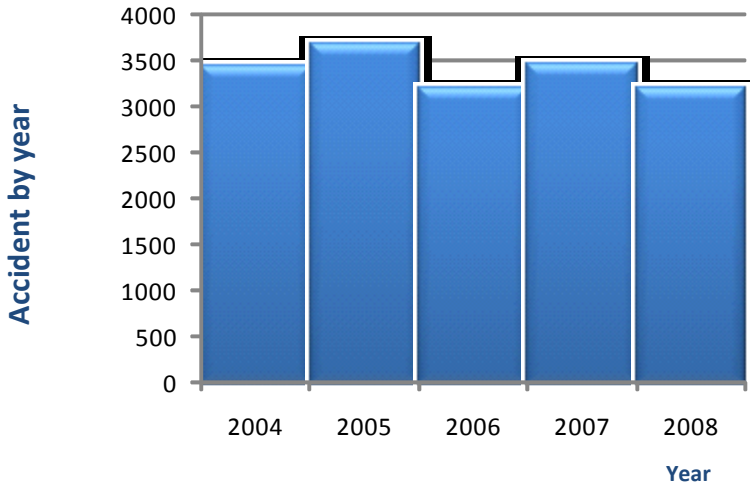
- **Accident**

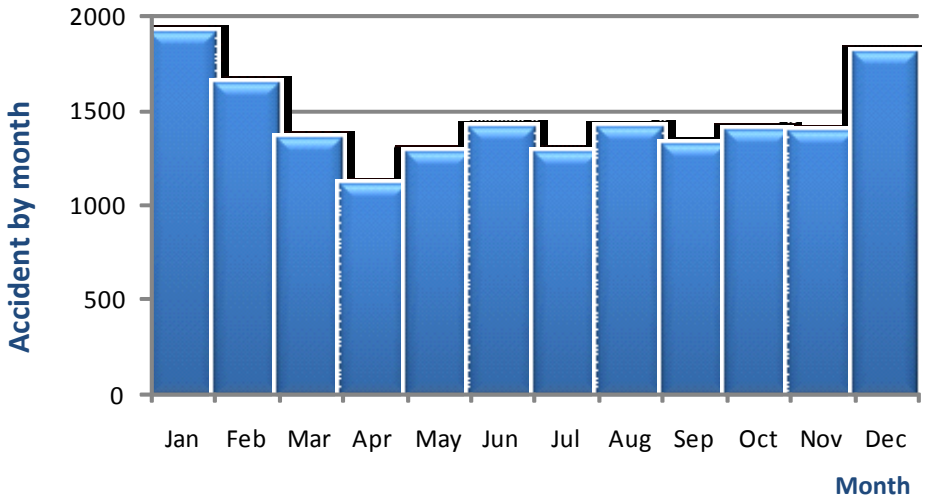
Digital Billboard Location

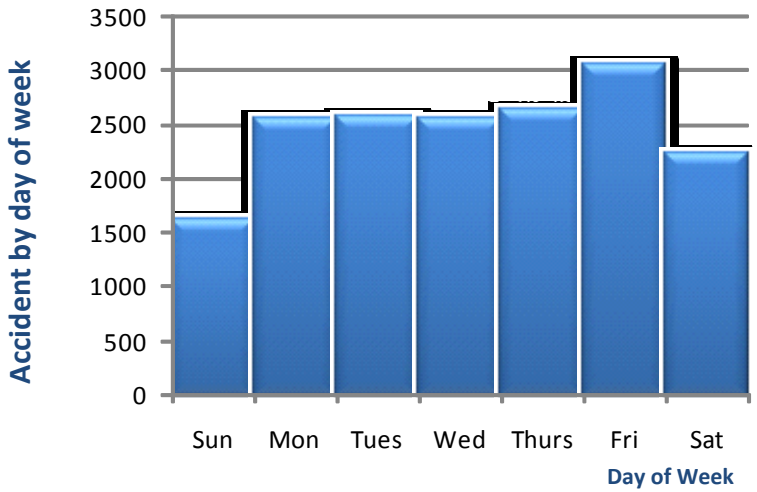
- AADTs vary near the digital billboards between 21k and 44k vehicles per day
- Collectively, the five locations represent 155k vehicles per day

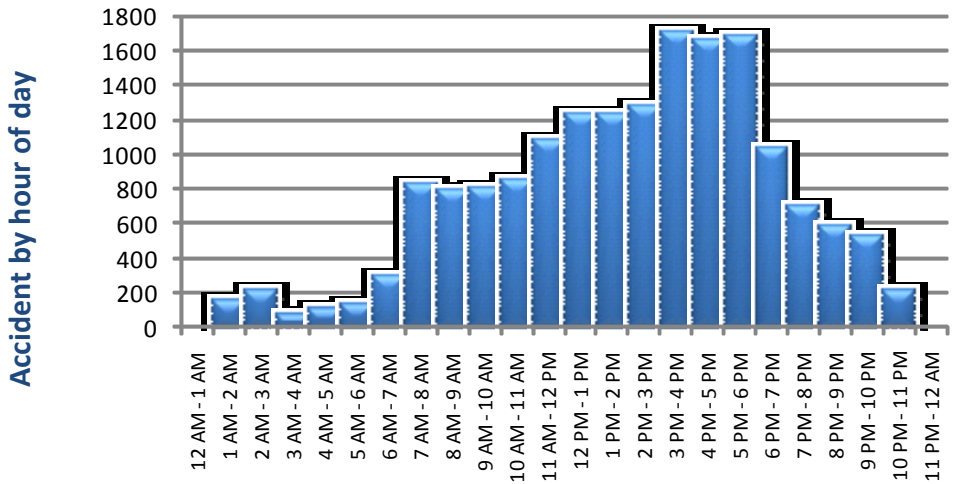


Accident Data Available



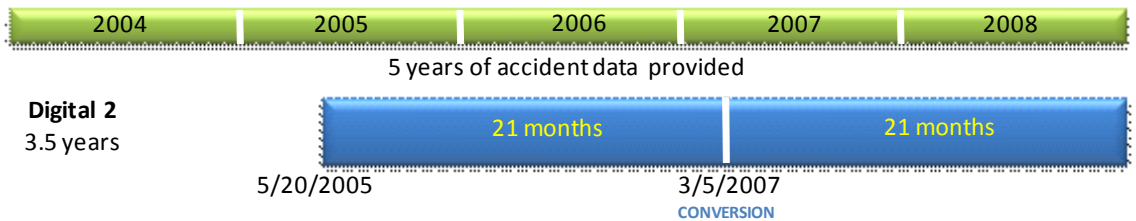


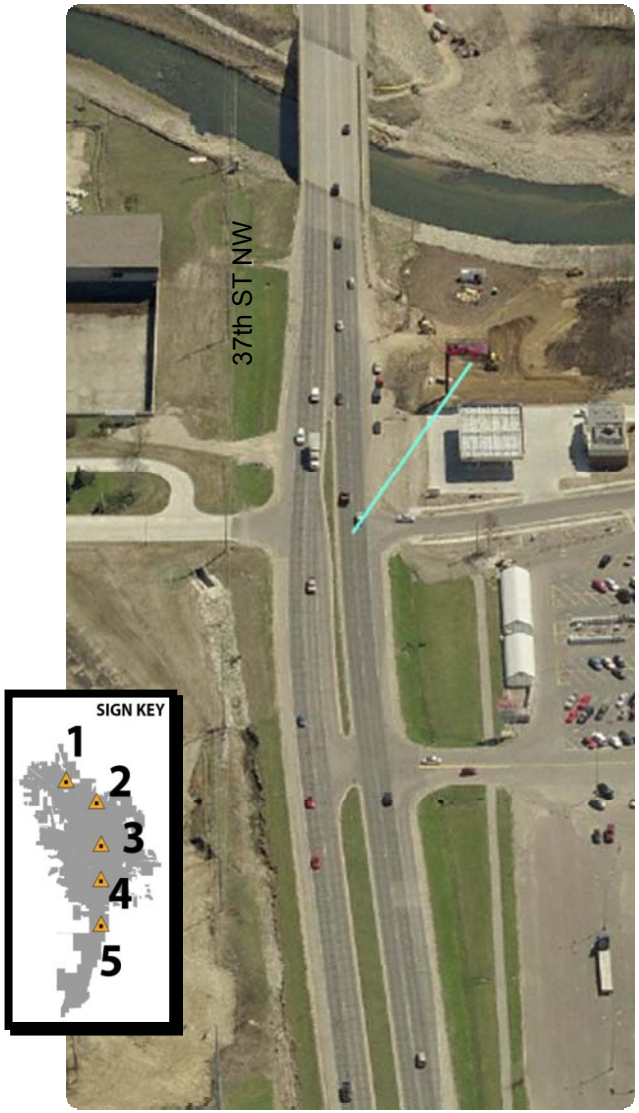




Billboard Site #2

Billboard No.	Location	Digital Facing	Face Size	Configuration	Reader side
2	37th St NW near 3rd Ave NW	West	10' 6" x 36'	Free standing, Flag	Right





Billboard Site #2

Accident and Billboard Locations (between 2004-2009)

- **Accident**

Digital Billboard Location

Radius (Miles)

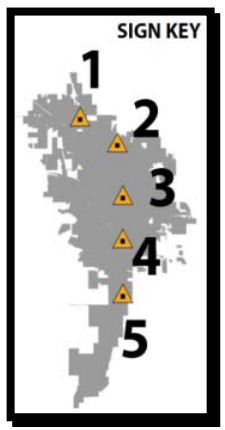
1.0

0.8

0.6

0.4

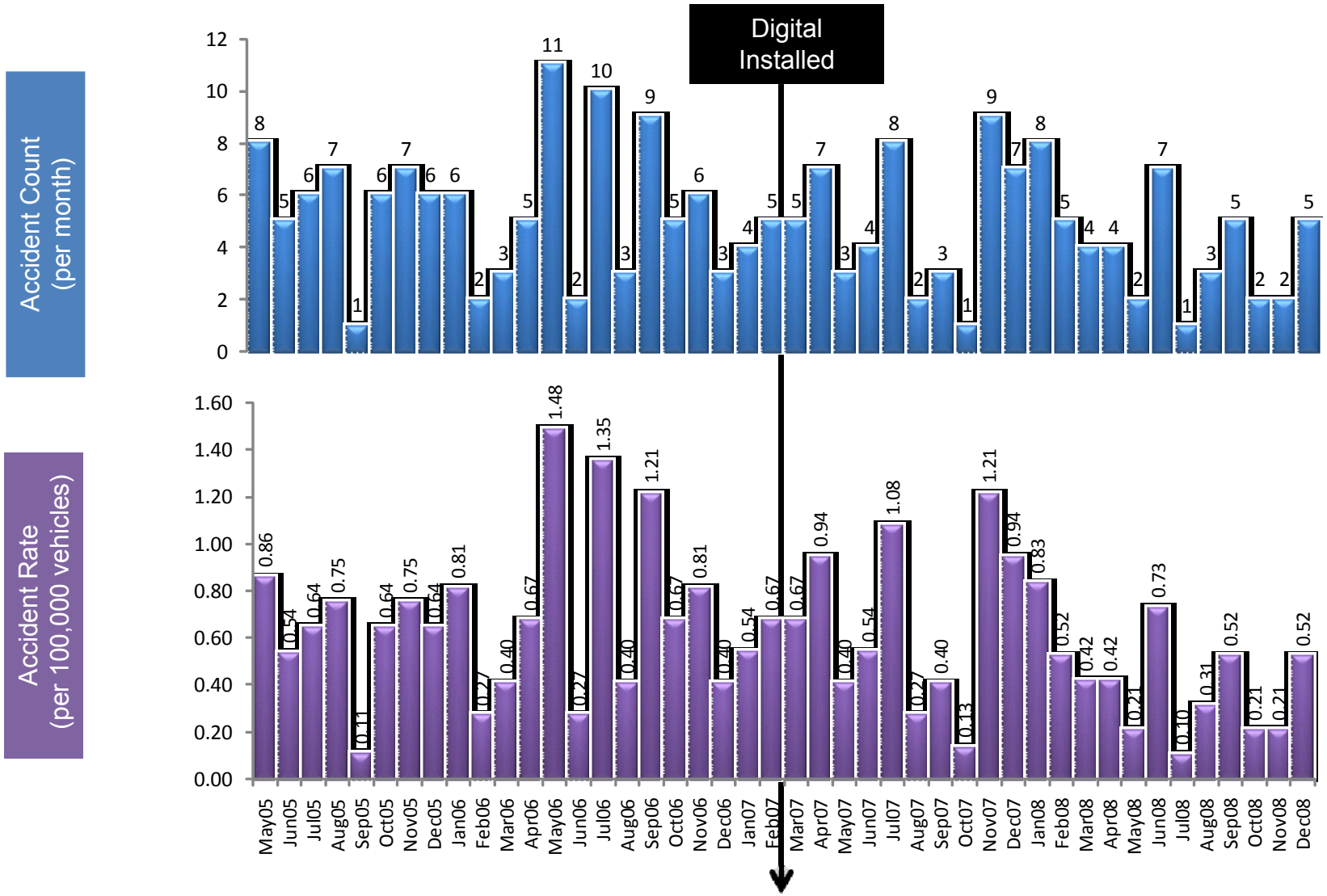
0.2



Billboard Site #2: metrics

		DISTANCE RANGE FROM BILLBOARD (MILES)				
		0.2	0.4	0.6	0.8	1.0
Prior to Installation	Total Accidents as Conventional Billboard	54	152	206	395	553
	Average Number of Accidents in a Month	5	13	17	33	46
	Standard Deviation	2	4	5	9	14
	Peak Number of Accidents in Any Given Month	7	18	24	46	60
	Minimum Number of Accidents in Month	2	5	6	11	15
Digital Billboard	Total Accidents as Digital Billboard	48	118	165	302	457
	Average Number of Accidents in a Month	4	10	14	25	38
	Standard Deviation	3	3	3	7	13
	Peak Number of Accidents in Any Given Month	9	16	20	39	61
	Minimum Number of Accidents in	1	5	9	13	17
% Change	Total Accidents	-11%	-22%	-20%	-24%	-17%

Billboard Site #2: before and after



All locations: summary results

		DISTANCE RANGE FROM BILLBOARD (MILES)				
		0.2	0.4	0.6	0.8	1.0
Prior to Installation	Total Accidents as Conventional Billboard	489	1162	1883	2783	4088
	Average Number of Accidents in a Month	17	42	65	87	117
	Peak Number of Accidents in Any Given Month	35	82	123	169	238
Digital Billboard	Total Accidents as Digital Billboard	408	1087	1784	2660	3914
	Average Number of Accidents in a Month	15	41	63	85	114
	Peak Number of Accidents in Any Given Month	29	71	116	163	210
% Change	Total Accidents per month	-17%	-6%	-5%	-4%	-4%

All locations: summary results

- The collective 5 digitals in Rochester show that within 0.6 miles of all digital billboards in Rochester, MN over an average of 3.2 years

  5% decrease in the number of accidents

  6% decrease in the rate accidents

  2 fewer accidents on average per month

  slight increase in the number of accident free months

- The accident statistics and metrics are consistent, exhibiting statistically insignificant variations

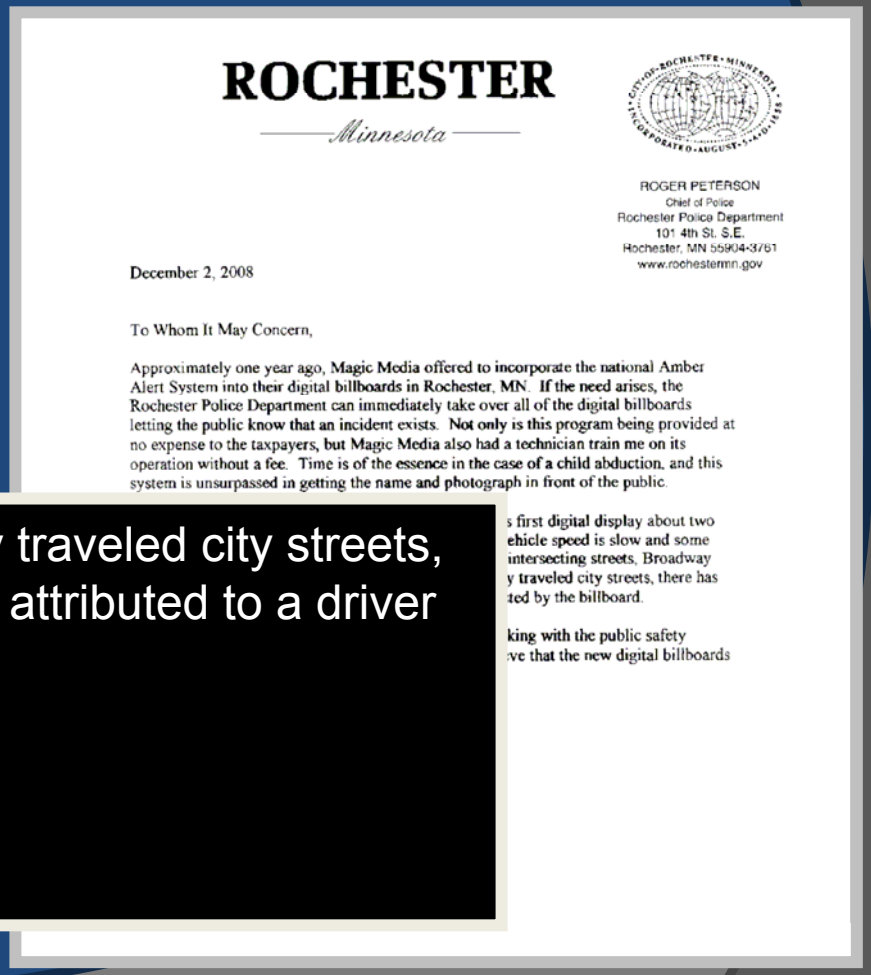
- Results are comparable with the 7 digitals studied in Cleveland Ohio

Comparisons : MN and OH studies

Year of study	2009	2007
Location	Rochester, Minnesota	Cuyahoga, Ohio
Billboards	5 digital (1 new, 1 from trivision) All 10’6” x 36’	7 digital conversions (All from conventional) All 14x48
Roads	Local roads	Interstate routes
Study period	4.2 years per location max 25 months max (before/after)	3 years per location 18 months (before/after)
Traffic Volume	7.7M to 16M vehicles per year per location	43.2M to 57.9M vehicles per year per location
Accident Data Set	About 18,000 accidents in region over 5 years	About 37,000 accidents in region over 6 years

What do the experts think?

- In Rochester, local police were consulted regarding their opinions regarding distraction and they said…



ROCHESTER

Minnesota

ROGER PETERSON
Chief of Police
Rochester Police Department
101 4th St. S.E.
Rochester, MN 55904-3761
www.rochestermn.gov

December 2, 2008

To Whom It May Concern,

Approximately one year ago, Magic Media offered to incorporate the national Amber Alert System into their digital billboards in Rochester, MN. If the need arises, the Rochester Police Department can immediately take over all of the digital billboards letting the public know that an incident exists. Not only is this program being provided at no expense to the taxpayers, but Magic Media also had a technician train me on its operation without a fee. Time is of the essence in the case of a child abduction, and this system is unsurpassed in getting the name and photograph in front of the public.

s first digital display about two
ehicle speed is slow and some
intersecting streets, Broadway
y traveled city streets, there has
ted by the billboard.

king with the public safety
ve that the new digital billboards

"Despite being placed on heavily traveled city streets, there has not been one accident attributed to a driver being distracted by a billboard"

Gary Mulleneaux
Rochester Police

Questions