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# Color Dynamic Message Signs

January 21, 2015

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# History

- ▶ **Dynamic message signs (DMS) have been around for decades**



- ▶ **Industry technology has evolved: Jumbotron, digital billboards and business signs**



# What Other States Are Doing with Color

REMAIN WITH  
DISABLED VEHICLES  
CALL #477

STATE LAW  
REMOVE SNOW - ICE  
FROM VEHICLE

  **MERGE LEFT  
ROAD WORK  
AHEAD**

DELAYS AHEAD  
BE PREPARED TO STOP

REDUCE SPEED  
ROAD WORK AHEAD

 **ICE ON ROADWAY  
USE CAUTION**

**SPEED LIMIT 45** | **WATCH FOR  
CHANGING  
CONDITIONS**

**SPEED LIMIT 50** | **CAUTION  
ICY ROADS  
REDUCE SPEED**

# Trends

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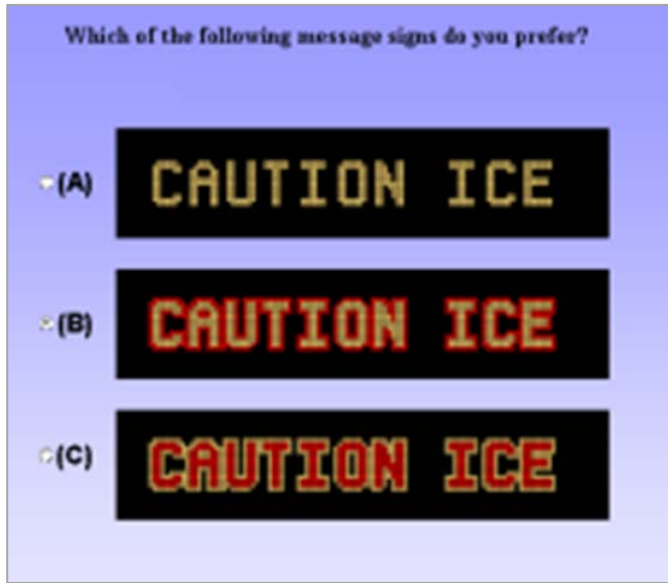
- ▶ **Graphics have some definite advantages**
  - ▶ Recognized more easily and more quickly
  - ▶ Universal language
- ▶ **Color has some definite advantages**
  - ▶ Quicker recognition
  - ▶ Reinforce driver expectations
- ▶ **Lane control and specialty signs**
  - ▶ All are color, full-matrix DMS
- ▶ **Many states have color DMS deployed, but only use in a monochrome format**

# Recent Studies on Color DMS

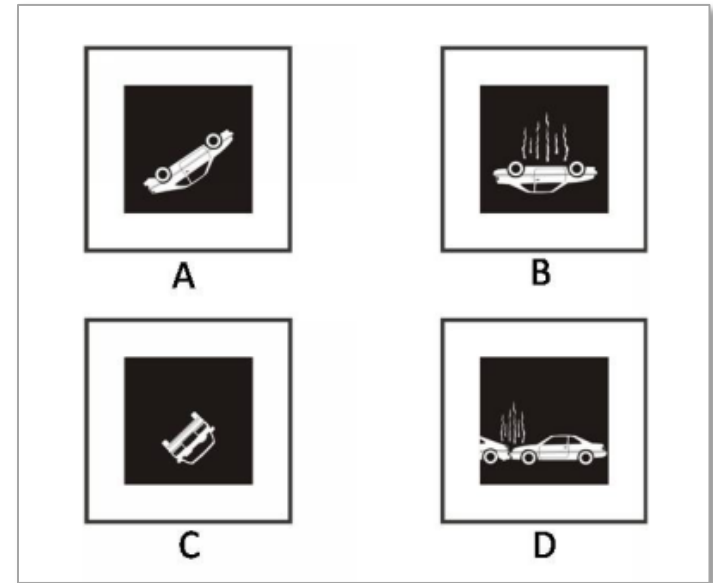
- ▶ Previously conducted in Texas (TTI), Rhode Island, Canada, Australia and Europe
- ▶ Focus groups and driver simulations



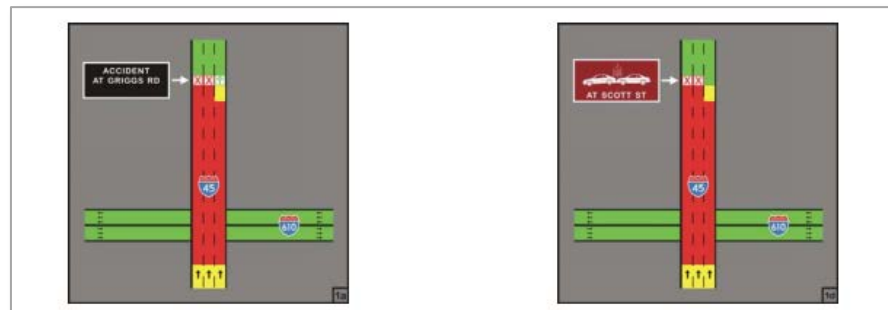
# Lessons Learned: Failures to Avoid



Only one color per letter

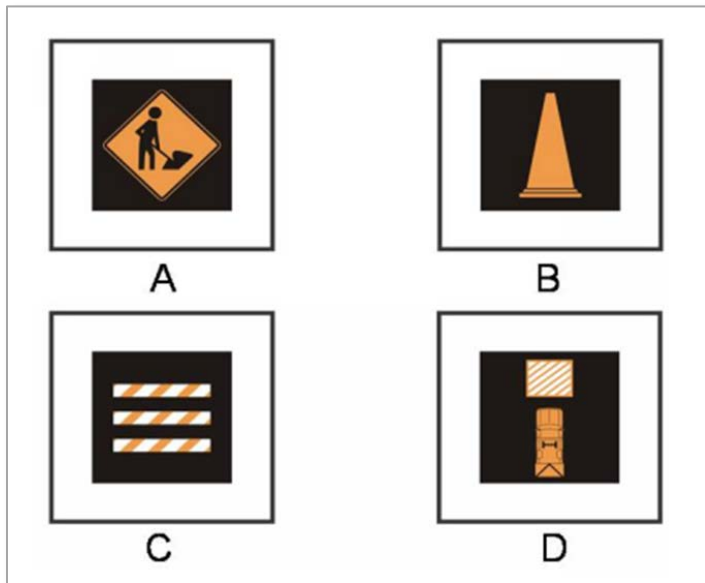


Complex pictures are confusing



Too much color is bad

# Lessons Learned: Successes to Build On



**Recognizable symbols are quick and easy to understand**



**When used properly, color and graphics can help make the message more understandable**

**Common symbols are effective in diamonds – new symbols are not**

# Recent Tollway Testing

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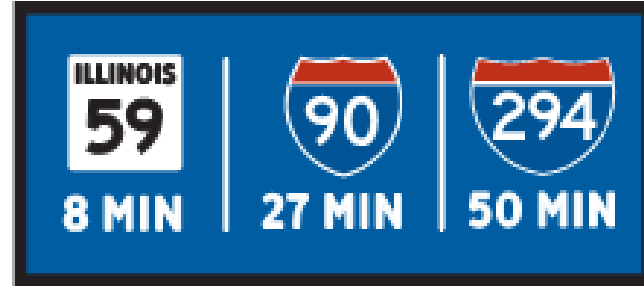
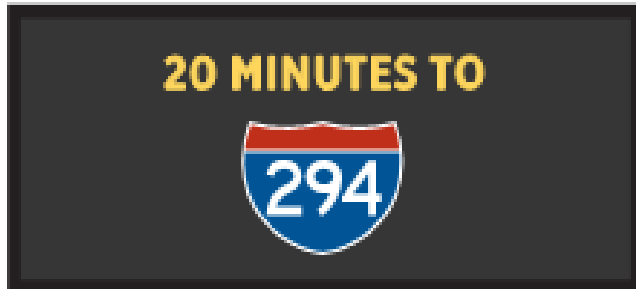
- ▶ **Off-road testing conducted in December**
- ▶ **60 participants (mostly Tollway employees)**
- ▶ **Were asked to rank signs on a five-point scale**
- ▶ **50 sign messages tested in all**



# Tollway Test Results – Worst Performers



# Tollway Test Results – Top Performers



# Next Steps

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- ▶ **Want to take full advantage of color DMS capabilities**
- ▶ **Want to avoid mistakes**
  - ▶ Have learned from previous research and testing
- ▶ **Formal FHWA Request for Experimentation**
  - ▶ Formal process to try new signs on a limited basis
  - ▶ Allows the Tollway to determine full potential without full deployment
  - ▶ Allows us to better determine what color messages and graphics have value to our customers



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**THANK YOU**

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