



Traffic Control Devices Pooled Fund Study

Co-Chairs:

Kevin Sylvester (FHWA)

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SCHOOL

Purpose

To assemble a consortium composed of regional, State, local entities, appropriate organizations and the FHWA to:

- 1) establish a systematic procedure to select, test, and evaluate approaches to novel TCD concepts as well as incorporation of results into the MUTCD;
- 2) select novel TCD approaches to test and evaluate;
- 3) determine methods of evaluation for novel TCD approaches;
- 4) initiate and monitor projects intended to address evaluation of the novel TCDs;
- 5) disseminate results; and
- 6) assist MUTCD incorporation and implementation of results.

TCD PFS Members

- **State DOTs (23)**

California DOT

Colorado DOT

Florida DOT

Georgia DOT

Illinois DOT

Iowa DOT

Kansas DOT

Maryland DOT

Massachusetts DOT

Minnesota DOT

Mississippi DOT

Missouri DOT

Nebraska DOT

New Hampshire DOT

New Jersey DOT

Nevada DOT

New York DOT

North Carolina DOT

Oregon DOT

Pennsylvania DOT

South Carolina DOT

Texas DOT

Wisconsin DOT

- **FHWA**

Office of Operations

Office of Safety

Eastern Federal Lands

- **Local Representation**

Los Angeles DOT

(John Fisher, retired)

Broward County DOT

(Lee Billingsley,
retired)

- **Organizations**

American Traffic Safety
Services Association₃
(ATSSA)

Recently Completed Projects

- Evaluation of Elongated Pavement Markings
- Warning Sign Legends for Emergency Incidents

Evaluation of Elongated Pavement Markings

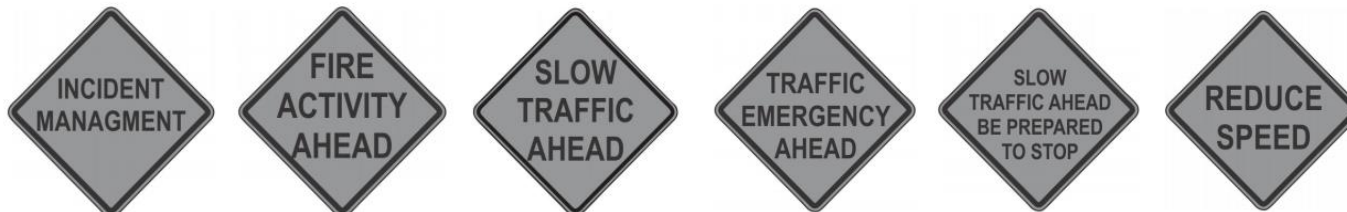
Findings:

- Elongated Pavement Markings Significantly Improve Recognition Distance
- Recognition Distance Increases Substantially when the Elongation Ratio is Increased
- Elongation Ratio of 5 to 1 recommended
- Field Evaluations in Kansas, Missouri, and Wisconsin for Speed and Curve Warning Signs
- Speeds Significantly Reduced in 3 of 4 Sites for Speed Warning
- Speeds Significantly Reduced in 2 of 3 Sites for Curve Warning



Warning Sign Legends for Emergency Incidents

- Goal: Determine a minimum number of signs that can be used by first responders to effectively provide warning for various emergency incidents.
- Result: Different first responders need a wide variety of signs based on various types of incidents and so determining a small number of signs is very difficult.
- Key Findings:
 - Scenarios and potential signs were developed using brainstorming sessions with incident management personnel
 - Various symbols and legends were tested to determine their suitability for use in emergency incidents
 - Recommendations are made regarding potential revisions for increased messages for the MUTCD



Current Projects

- Countdown Pedestrian Signals Legibility and Comprehension without Flashing Hand
- Lane Line Markings in Advance of Lane Reduction Transitions
- Human Factors Evaluation of Intersection Conflict Warning Systems

Countdown Pedestrian Signals Legibility and Comprehension without Flashing Hand

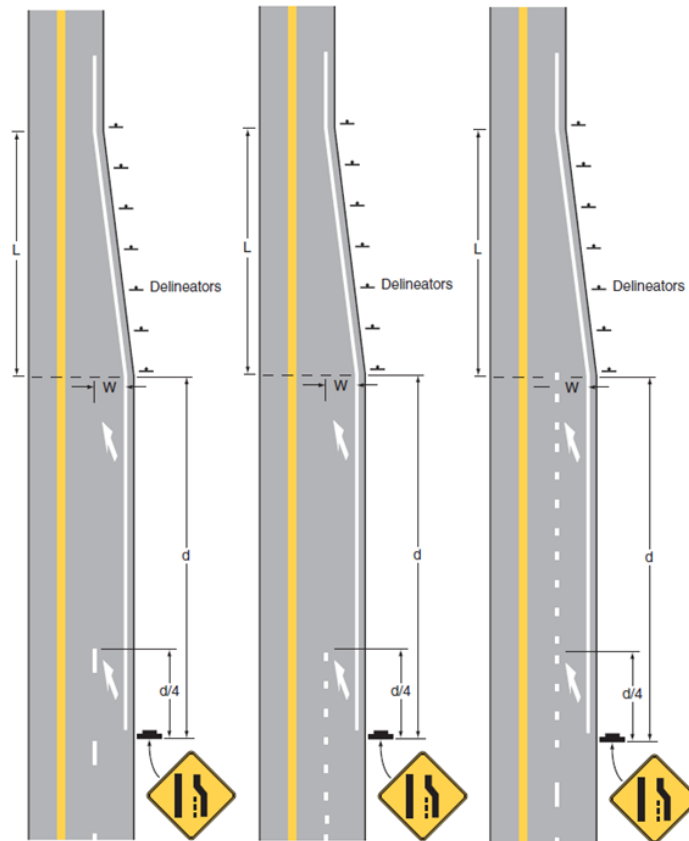
Preliminary Findings:

- Legibility
 - 20 participants with low vision (20/70 to 20/200) served as participants
 - At a 40 foot crosswalk, ~75% could identify the numbers on the display
 - At 100 feet, only ~5% could identify the numbers
- Installation of Signals at Two Intersections
 - Data are being collected in both directly after and 6 months after installation to determine long term effects



Lane Line Markings in Advance of Lane Reduction Transitions

Evaluate (driver understanding & behavior) existing standard lane-reduction lane line marking pattern as well as potential layouts of a dotted line for a lane-reduction transition.



Human Factors Evaluation of Intersection Conflict Warning Systems

Conduct a human factors evaluation of different ICWS alert and intersection conditions regarding sign *combination*, *placement*, & *legend message*



Recently Selected Topics for Consideration

- Symbol Sign Evaluation
- Lane Reduction vs Lane Drop
- Guide Signing for U-Turn Intersections
- Enhancing Conspicuity for Standard Signs and Retroreflective Stripes on Posts
- Simplification of Channelizing Device Delineation Patterns
- Signing for Pedestrians for Pedestrian Activated Beacons (instructions)

Have Questions? Want to Join?

- Contact Tim Crouch (tim.crouch@dot.iowa.gov)
- Contact Jim Shurbutt at FHWA (jim.shurbutt@dot.gov)