Traffic Control Devices
Pooled Fund Study

Co-Chairs:
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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 Association (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)