Improving the Safety of Mobile Lane Closures

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Improving the Safety of Mobile Lane Closures

Need for Research

Experimental Setup

Observations

Implementation of Findings
Mobile Lane Closures

Utilizes trucks with lights, signs, and arrowboards

Primarily for maintenance and slow moving operations

Multilane roads, urban and rural, day and night

Typical Application 35
Figure 6H-35
MUTCD, 2009 Edition
Why Mobile Lane Closures?

Inherently challenging, commonly used technique
- Trying to accomplish a lot with little
- Dynamic, constantly changing environment

Desire to expand on and clarify existing standards
Improving the Safety of Mobile Lane Closures

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Implementation of Findings
Research Approach – Driver Behavior-Based

Study the effect of typical traffic control components and procedures on driver behavior through videotaping and speed monitoring of field tests
Goal
Revised agency standards
Focus on truck configurations and spacings
Example Test - Buffer Space

What is the maximum buffer distance before lateral intrusions begin?
Drum @ 100 ft

Vehicles, percent

0 intrusions in 31 min

Buffer Space

Traffic Direction

Distance, ft

0 50 100 150 200 250 300 350 400 450

Cars
SU's
MU's
Drum @ 150 ft

Vehicles, percent

Cars
SU's
MU's

Traffic Direction

0 intrusions in 27 min

Buffer Space

Distance, ft

0 50 100 150 200 250 300 350 400 450
Drum @ 200 ft

Vehicles, percent

Traffic Direction

Buffer Space

Distance, ft

0 50 100 150 200 250 300 350 400 450

Cars
SU's
MU's

10 intrusions in 59 min
No Drum

Visibility of work crew is vital

Traffic Direction

Distance, ft

Vehicles, percent

Cars
SU's
MU's
Proposed Standard - Right Lane Closure

Legend

- **AW** truck w/message
- **TMA** w/arrowboard
- Work space

*Not to scale

TMA is required when truck encroaches onto roadway

- **AW** truck
- **TS**
- **BS**
- **WS**

1000’-2500’
200’-500’
100’-150’ Variable

Summary – Mobile Lane Closures

Recommended standards have been developed based on field study of driver behavior

Phase I, data collection – TRR 2169 (2010)
Phase II, standards – TRB Poster Session 666 (2011)
Future studies – extend to two-lane highways? Other?
FDOT Mobile Operations Safety

Standard Index 619

Multilane, Mobile Operations Work Within Travel Way

Based on MUTCD

Following distances by FDOT at min 500’ Rural, 300’ Urban

Some Districts STRICTLY enforced min distances

Case Study

- Mobile Testing Vehicle (FWD)
- Operated by ARA personnel
- Multiple stops per mile
- Stops < 2 mins
- Rural State Highway
- First TMA 500’ behind FWD
- Est. 4 incursions/hour
April 1, 2015 Revision, FDOT Standard 619

Decrease in Rural distance from 500’ to 100’

Decrease in Urban distance from 300’ to 50’

Adjustable for current traffic

Increases intensity of lights near work vehicle
Questions?

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