Maryland Work Zone Safety Program

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2004 Roadway Work Zone Safety Conference
November 5, 2004
Future Growth

- 2020
  - 60% increase in VMT
  - 1 M increase in Population
  - 500K more jobs
  - Smart Growth
  - TBTP
  - Traffic Management
Work Zone Safety & Mobility Concerns

Construction work is increasing Nationally

Annual Expenditures for designing, constructing, maintaining, and operating the Nation's Infrastructure (Billions)

Year

- 1992
- 1993
- 1994
- 1995
- 1996
- 1997
- 1998

$50
$55
$60
$65
$70
$75
$80
$85
$90
$95
$100
Work Zone Safety & Mobility Concerns

Fatalities are increasing nationwide

- 1999: 872 fatalities
  2003: ~1200 fatalities

- More than 40,000 injuries per year
**Work Zone Safety & Mobility Concerns**

**Impacts:**
- 13% of the NHS is under construction
- 24% of non-recurring congestion is due to work zones

**Concerned customers:**
- Recent NQI survey
  - Only 29% of respondents satisfied with traffic flow thru work zones
  - Delays due to construction received the lowest satisfaction rating

- Recent traveler survey: Top reason cited for delays was heavy traffic followed by roadwork
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- TTC Safety & Mobility Council
  - SHA, FHWA, MHCA, MSP and Other Industry Representatives
  - Discuss and recommend improvements in SHA policies, design, processes, and specifications/standards

- Work Zone Traffic Impact Analysis
  - Queue/delay software analysis
  - Compare aggressive temporary traffic control strategies
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- **Work Zone Safety Awareness**
  - ARTBA Award (2002) for best safety awareness program
  - Work zone safety awareness week (MD-VA-DC)
  - Brochures, presentations, TV/radio infomercial

- **Work Zone Traffic Control Training**
  - Traffic Manager and Flagger training
  - Emphasize SAFETY

- **TTC Standards Update**
  - Continuous update of TTC Standards that exceed MUTCD

- **Work Zone Legislation**
  - Double Fines - Points
  - Reckless Endangerment of Workers (Proposed)
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Work Zone Safety Toolbox

Guidance on:
- PCMS with speed display
- Temporary Rumble Strips
- Wider Lane Lines
- Optical Speed-bars
- Traffic Lookouts
- Drone Radars
- CB Wizard Radio
- Sign sizes, etc.
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- NCHRP-350 Compliance:
  - All Category I, II, & III devices shall be crashworthy
    (Cones, tubular markers, flexible delineator posts, drums, barricades, portable signs supports with signs, intrusion alarms, TMA, temporary barriers, temporary end treatments)

  - Use of Category IV devices shall comply with MUTCD-Part-6
    (Portable trailer mounted devices such as arrow panels and CMS)
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- Use of MBT in work zones
  - SHA’s Guidelines
  - TTC Typical Applications

*TEA- 21 (Section 1402b)*

“Positive separation technologies” must be considered for use
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- Emphasis on safe/clear passage for ALL Road Users
  - Drivers, Bicyclists, Pedestrians
  - Positive guidance
  - Pedestrians with disabilities
  (Part-6 of MUTCD and ADA-1990)
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New Standards

- Fluorescent orange wide angle retroreflective sign sheeting material shall be used on all work zone signs

- All approved portable sign stands shall be used with roll-up signs, composite aluminum signs, or plastic signs

- 32 inch F shaped temporary concrete barrier on all new projects
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- **New Standards**
  - High performance wide angle white and fluorescent orange reboundable sheeting shall be used on drums (Effective January 1, 2006)
  
  - A shadow vehicle (with flashing lights, TMA, and Arrow Panel) shall be used on freeways, expressways, and roadways with posted speed ≥ 55 mph for the installation and retrieval of temporary traffic control devices (under review)
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- ITS Technologies in Work Zones

Potential Benefits:
- Improve mobility (Congestion/Incident management)
- Reduce downtime (Get-in, Get-out, and Stay-out)
- Accurate/timely info to road users
- Understanding/compliant road users

Concerns:
- Credibility of info/control provided
- Travel time info vs. delay vs. queue length
- Manual vs. automated control
- Uniformity/consistency
- Avoid overcontrol – inform vs. regulate
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- ITS Technologies in Work Zones
  - AASHTO TIG
  - Test deployments
    > Dynamic Late Lane Merge
    > Real-time Travel Time
    > Real-time Advisory Speed Ahead
    > Variable Speed Limit
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- Information Sharing
  - Road Ready Brochures
  - Planned and Active Work Zone Information on Internet
  - Project-specific Web Sites
  - Real-time Traffic Information
Questions ???