

A Discussion of Subpart K Temporary Traffic Control Devices

James E. Bryden, PE
jbryden@nycap.rr.com



2009 Traffic Management &
Work Zone Safety Conference
Orlando, Florida - March 12, 2009



Safetea-Lu Section 1110

Temporary Traffic Control Devices

- Proper TTCDDs – per MUTCD
- Regulations – law enforcement, positive protection, TTCDDs
- Pay items – law enforcement, positive protection, TTCDDs
- More stringent State standards are acceptable



Underlying Concerns

- Safety of Road Users
- Safety of Workers
- Equitable payment for TTC
- Maintain flexibility for Highway Agencies
- Wider use of proven safety tools

- Based on widespread input from industry and highway agencies



23 CFR Part 630 – Subpart K

Temporary Traffic Control Devices

- Issued December 5, 2007
- Effective December 4, 2008
- Purpose - to decrease the likelihood of highway work zone fatalities and injuries to workers and road users
- Applies to Federal-aid highway projects
- Encouraged on other highway projects



Development of Subpart K

- Followed normal rulemaking procedure
- Stakeholders meeting – March 2006
- NPRM – November 2006
- Comment period extended to February 2007
- 60 sets of comments received
- Comments generally supportive – of purpose
 - More agency flexibility requested
 - Strengthen worker protection
- Final Rule considered all comments, revised NPRM



Key Components of New Rule

- Added emphasis on safety in WZ policy
- Positive protection devices
- Exposure control measures
- Other traffic control measures
- Uniformed law enforcement
- Safe entry/exit for work vehicles and equipment
- Payment for traffic control features & operations
- Quality guidelines



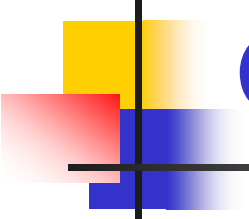
Policy and Procedures for WZ Safety Management

- “shall include the consideration and management of road user and worker safety on Federal-aid highway projects”
- processes, procedures, and/or guidance, to be developed in partnership with the FHWA
 - Shall address
 - Positive Protection Devices
 - Exposure Control Measures
 - Other Traffic Control Measures



Agency Processes, Procedures and/or Guidance

- Consideration of MUTCD, AASHTO RDG
 - Project specific engineering analysis
- OR
- Agency guidelines based on project and highway characteristics and factors



Characteristics and Factors to Consider – 1106b

- Project scope and duration
- Anticipated WZ speeds
- Anticipated traffic volume
- Vehicle mix
- Type of work
- Distance between workers and traffic
- Amount of worker exposure
- Escape paths for workers
- Time of day
- Work area restrictions
- Roadway departure consequences – road users
- Hazards associated with safety device
- WZ Geometrics
- Work space access
- Roadway classification
- Impacts on project cost and duration



Uniformed Law Enforcement Policy – Section 1106c

“Each agency, in partnership with the FHWA, shall develop a policy addressing the use of uniformed law enforcement on Federal-aid highway projects.”

Law Enforcement Policy Should Address:

- Basic interagency agreements – highway and police agencies
- Interaction during project planning and development
- Conditions, criteria for WZ enforcement
- Nature of services, procedures to determine project specific services
- WZ training for officers
- Communication procedures
- Reimbursement agreements





WZ Safety Management and Strategies – Section 1108

- Positive Protection Devices
- Exposure Control Measures
- Other Traffic Control Measures
- Uniformed Law Enforcement Officers
- Work Vehicles and Equipment
- Payment for Traffic Control

Positive Protection Devices

- devices that contain and/or redirect vehicles – per NCHRP 350
 - Use based on engineering study – project or agency level considering factors in 1106b
 - Shall be considered in WZs that place workers at increased risk
- AND**
- Where positive protection devices offer the highest potential for increased safety for workers and road users,





Highest Payoff Potential for Positive Protection

- No escape for workers – tunnels, bridges, etc.
- Long duration WZs, e.g. 2+ weeks
- High traffic speeds (e.g. 45 mph) combined with high traffic volumes
- Workers close to open traffic lanes
- Overnight roadside hazards – dropoffs, open bridge decks, etc.



Exposure Control Measures

avoid/minimize worker exposure to traffic & road user exposure to work activities, while considering mobility impacts.

- Full road closures;
- Ramp closures;
- Median crossovers;
- detours or diversions;
- Rolling roadblocks for WZ setup/removal
- Work at night, offpeak periods
- Accelerated construction techniques.



Other Traffic Control Measures

All strategies and temporary traffic controls other than Positive Protection Devices and Exposure Control Measures used to reduce the risk of work zone crashes (includes uniformed law enforcement officers)

Consider to reduce work zone crashes and risks and consequences of work space intrusions

Not mutually exclusive - consider in combination as appropriate



Traffic Control Devices

- Effective, credible signing
- Changeable message signs
- Arrow panels
- Warning flags and lights on signs
- Longitudinal and lateral buffer space
- Trained flaggers and spotters



Other TCDs & Safety Devices

- Enhanced flagger station setups
- Intrusion alarms
- Rumble strips
- Pace or pilot vehicle
- High quality work zone pavement markings and removal of misleading markings
- Reduced Channelizing device spacing
- Longitudinal channelizing barricades



Other Strategies

- WZ speed management
- Law enforcement
- Automated speed enforcement – where authorized
- Drone radar
- Worker and work vehicle/equipment visibility
- Worker training
- Public information and traveler information
- Temporary traffic signals



Law Enforcement – Underlying Assumptions

Presence in view of traffic can affect driver behavior, helping to maintain appropriate speeds and improve driver alertness through the WZ.

Not a substitute for the temporary traffic control devices required by Part 6 of the MUTCD.

Need is greatest with high traffic speeds and volumes, and where the WZ results in substantial disruption to or changes in normal traffic flow





Highest Payoff Potential for Law Enforcement

- Frequent worker presence adjacent to high-speed traffic w/o positive protection
- TC setup or removal
- Complex or short term changes in traffic patterns
- High-risk night work operations
- Adverse crash history
- Stoppage of all traffic
- Anticipated queuing on high-speed roadways
- Other high-risk situations benefiting from improved driver behavior/awareness



Payment for Law Enforcement

- Costs are eligible for Federal-aid participation
- Excludes law enforcement activities that would normally be expected in and around highway problem areas
- Payment through construction contract or by direct interagency reimbursement
- Contract payment subject to 1108f
- Interagency reimbursement requires adequate budgeting

Work Vehicles and Equipment Access

Agencies should also address safe means for work vehicles and equipment to enter and exit traffic lanes and for delivery of construction materials to the work space, based on individual project characteristics and factors.





Payment for Traffic Control

- PS&Es shall include appropriate pay item provisions for implementing the project TMP
- Either method or performance based specifications are acceptable
- Payment for WZ traffic control shall not be incidental to the contract, or included in payment for other items of work
- Separate pay items for major categories of TCDs, safety features, and WZ safety activities – e.g. pos. prot., police
- Provide sufficient details to determine effort required
- Unit price, lump sum, or combination OK



Lump Sum Items

- Limited to items for which an estimate of the actual quantity required is provided in the PS&E or for items where the actual quantity required is dependent upon the contractor's choice of work scheduling and methodology;
- Include contingency provision to provide additional payment if the quantity or nature of the required work changes, (increase or decrease) due to circumstances beyond the control of the contractor;



Unit Price Payment

provided for those items over which the contractor has little or no control over the quantity, and no firm estimate of quantities is provided in the PS&Es,

BUT

over which the highway agency has control of the actual quantity to be required



Other Payment Requirements

Specifications should clearly indicate how placement, movement/relocation, and maintenance of TCDs and safety features will be compensated;

Include provisions to require and enforce contractor compliance:

- liquidated damages
- work suspensions
- withholding payment

Maintenance of TTCDs

- Each agency shall develop and implement quality guidelines to help maintain the quality and adequacy of TTCDs
- May choose to adopt existing quality guidelines – ATSSA or other states





Key Components of New Rule

- Added emphasis on safety in WZ policy
- Positive protection devices
- Exposure control measures
- Other traffic control measures
- Uniformed law enforcement
- Safe entry/exit for work vehicles and equipment
- Payment for traffic control features & operations
- Quality guidelines



What We Expect to See

- Increased consideration and management of worker and motorist safety in WZs
- More strategic and effective use of uniformed law enforcement in WZs
- More clarity on and better provisions for safety features needed on projects
- Better quality devices
- Safer WZs



Resources

FHWA Website

<http://ops.fhwa.dot.gov/wz/resources/policy.htm>

- NPRM
- Final Rule
- Questions & Answers Document

WZ Peer-to-Peer Program

<http://ops.fhwa.dot.gov/wz/p2p/index.htm>



FHWA Website

- <http://ops.fhwa.dot.gov:80/wz/resources/policy.htm>



Additional Resources

WZ Safety Grant Products

- WZ Positive Protection Toolbox (6/08)
- Laminated Cards for Shadow Vehicle Placement (8/08)
- Decision Tool for When to Use Positive Protection (11/08)
- WZ Safety Audits (in development)

National WZ Safety Information Clearinghouse

<http://www.workzonesafety.org/>



Additional Resources

Workshop

- Development of Policy on Use of Law Enforcement in WZs (in development)

Contacts:

- FHWA Division Offices
- Chung Eng (202) 366-8043
chung.eng@dot.gov
- Ken Wood (708) 283-4340
ken.wood@fhwa.dot.gov