

## CHAPTER 11

### WORK ZONE SAFETY

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## CHAPTER 11

### WORK ZONE SAFETY

#### A INTRODUCTION

Construction, maintenance, and utility operations produce serious highway safety problems. The changes in normal traffic flow and the unexpected conditions at many work zones provide hazardous situations and serious traffic conflicts. A comprehensive plan for work zone safety is required to minimize the effects of these construction and maintenance operations.

The intent of this Chapter is to require conformance with the MUTCD. The Introduction section of the current MUTCD presents information headings as Standard, Guidance, Option or Support.

- Headings of information identified as *Standard* are mandatory.
- Headings identified as *Guidance* are *Recommended*, but not mandatory. Engineering judgment or engineering study is appropriate.

See the full text of the current MUTCD Introduction, pages I-1 through I-3 for complete information.

#### B OBJECTIVES

The general objective of a program of work zone safety is to protect workers, pedestrians, transit passengers and facilities, bicyclists, and motorists during construction and maintenance operations. This general objective may be achieved by meeting the following specific objectives:

- Provide adequate advance warning and information regarding upcoming work zones in the traffic stream.

- Provide the driver clear directions to understanding the situation he will be facing as he proceeds through or around the work zone
- Reduce the consequences of an out of control vehicle
- Provide safe access and storage for equipment and material
- Promote speedy completion of projects (including thorough cleanup of the site)
- Promote use of the appropriate traffic control and protection devices
- Provide safe passageways for pedestrians through, in, and/or around construction or maintenance work zones, including people with disabilities in accordance with the American Disabilities Act of 1990.
- Provide adequate advance warning (3 months) to transit agencies of plans, programs and actions that are anticipated to occur on currently operating bus routes.

(Allen: during the teleconference someone suggested addressing the site distance issue in this section but I did not have any specific wording in my notes. This may be adequately addressed in the 8<sup>th</sup> bullet in Section D.1.b)

## **C POLICY**

Each highway agency with responsibilities for construction, maintenance, and operation of streets and highways shall develop and maintain a program of work zone safety, as set forth in the MUTCD, (Rule 14-15.010) as published by the Federal Department of Transportation (Federal Highway Administration). All State and local governments that receive Federal-aid highway funding shall comply with 23 Code of Federal Regulations (CFR) 630 Subpart J, more commonly know as the Work Zone Safety and Mobility Rule.

## **D PLANNING OF OPERATIONS**

The achievement of work zone safety requires careful and complete planning prior to the initiation of any work project. The planning objective is to develop a complete operational plan which would include consideration of the following:

### **D.1 Project Requirements**

#### **D.1.a Type of Operation**

Construction and maintenance projects may be classified as routine, emergency, or special operations.

##### **D.1.a.1 Routine Operations**

Routine operations would involve projects such as mowing, street cleaning, and preventive maintenance operations conducted on a regularly scheduled basis.

##### **D.1.a.2 Emergency Operations**

Emergency operations require prompt, efficient action to restore the roadway to a safe condition. These include operations such as clearing storm or crash debris, repairing or replacing damaged highway safety components and restoring inoperative traffic control devices.

### **D.1.a.3 Special Operations**

Special operations are defined as those projects neither routine nor emergency in nature, but are occasionally required to maintain or upgrade a street or highway. These include any construction, maintenance, utility, or other operation producing a hazard to workers, transit passengers, bicyclists pedestrians, or motorists. Any activity involving encroachment upon the highway right of way by workers, equipment, or material storage and transfer shall be subjected to the requirements of work zone safety.

### **D.1.b Nature of Work**

The development of the operation plan for work zone safety should include consideration of the following factors:

- Time span required
- Requirements for continuous operation or occupation of the work zone
- Capability of clearing the site during cessation of work activity
- The various construction methods, equipment, and procedures that may be utilized. Evaluation of alternate methods should be undertaken to determine the safest and most efficient procedures
- The necessity for storing equipment or material in the highway right of way
- Operations that may expose workers to hazards from through traffic
- Hazards to out of control vehicles such as excavations or unguarded structures or equipment
- Site conditions that may be confusing or distracting to the driver, transit passengers, pedestrians and bicyclists or produce sight distance problems
- Particular problems associated with night safety.
- Equipment inspection and preventive maintenance program

### **D.1.c Nature of Work Zone**

The nature of the work zone and the prevailing traffic conditions should, to a large degree, influence the procedures incorporated into the operation plan for work zone safety. A determination of the normal vehicle speeds and traffic volumes is essential. The distribution of traffic with respect to time (hour, day, etc.) and direction is also important for establishing traffic control procedures. If there is a transit route in the area where work is planned consideration for stopping buses and their passengers boarding or alighting the who need to reconnect to the sidewalk system or bike lanes.



## D.2 Work Scheduling

Proper work scheduling and sequencing of operations will not only promote efficiency, but also improve the safety aspects of construction and maintenance operations. Where feasible, routine operations and special projects should be conducted during periods of low traffic volume to reduce conflicts. Projects that may be carried out concurrently at the same site should be scheduled simultaneously to eliminate successive disruptions of traffic. Major projects that impede or restrict traffic flow should be coordinated and sequenced with similar projects in adjacent areas, to produce a minimum of disruption to orderly traffic flow in the overall highway network. The scheduling of work at a given location should include consideration of traffic generation (including special events), as well as traffic restrictions by work activities on the surrounding highway network. Transit agencies must be notified if it is anticipated that the work will disrupt their operational schedule.

## D.3 Traffic Control and Protection

Plans for traffic control around or through work zones should be developed with safety receiving a high priority. Plans should include protection at work zones when work is in progress and when operations have been halted (such as during the night). Provisions for the protection of work crews, traffic control personnel, bicyclists, pedestrians (in areas of high pedestrian use, construction of temporary facilities should be considered), transit passengers and motorists shall be included in the operation plans. In all cases, the operation plan for traffic control and protection shall include provisions for the following:

- Advance warning
- Clear view of work zone
- Roadway delineation
- Regulatory information
- Hazard warning
- Barriers
- Pedestrian and bicyclist safety
- Access for pedestrians, bicyclists and vehicles

- Access to adjacent properties by the public during construction
- Location of construction vehicles and equipment, including access of them into and out of the work zone
- Night safety (CHAPTER 6 - ROADWAY LIGHTING)
- Personnel training
- Traffic control and protective devices
- Transit Stops – passenger access and egress
- Portable Changeable Message Signs, when used, shall show proposed messages in the plans
- Advance Warning Arrow Panels in the “Flashing Arrow” mode shall only be used to indicate lane closures on a multi-lane roadway

#### **D.4 Coordination with Other s Agencies**

To ensure safe and efficient construction and maintenance operations, the operation plan should be developed and executed in cooperation with all interested individuals and agencies including the following:

- Highway agencies
- Police agencies
- Emergency agencies
- Contractors
- Utilities
- Building departments
- Mass transit agencies
- Traffic generators
- Local residents and businesses
- Neighboring jurisdictions

## **E WORK ZONE OPERATIONS**

Construction and maintenance projects should follow the operation plan and should include:

### **E.1 Public Information**

All reasonable effort should be made to inform the public of the location, duration, and nature of impending construction or maintenance projects. Transit agencies must be given advanced warning of operations planned so they can be responsible for notifying their passengers.

### **E.2 Contracts and Permits**

For construction and reconstruction projects, the general work zone layout; traffic control and protection procedures; occupational safety and health requirements; and specific traffic control devices required should be incorporated in the contract plans and specifications.

New utility installations in public rights of way are prohibited unless a permit by the appropriate highway agency is issued. A plan must be in place before any action is taken. Permits for routine maintenance (e.g., deteriorated pole/equipment replacement), minor alterations (e.g., changes in cable, wire, or transformer size), service drops, or emergency work should generally not be required. Any construction by utility companies involving encroachment of the highway right of way by workers, equipment, material storage and transfer, or other hazardous conditions shall be conducted in accordance with the requirements of the MUTCD for work zone safety and the Occupational Safety and Health Administration (OSHA).

### **E.3 Inspection and Supervision**

A regular program of inspection and supervision of all construction and maintenance projects shall be established and executed.

## **F EVALUATION OF PROGRAM**

The entire program for work zone safety should be periodically evaluated and revised to provide the safest practicable environment for workers, pedestrians, and motorists during utility, construction, and maintenance operations.