

**DIVISION 700 SUPPLEMENTAL GUIDANCE 1**

**PROCEDURE FOR TRAFFIC CONTROL THROUGH CONSTRUCTION WORK ZONES**

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**INTRODUCTION**

This document, known as the Procedure for Traffic Control through Construction Work Zones, is prepared in compliance with the U.S. Department of Transportation Federal-Aid Policy Guide, 23 CFR 630 Subpart J and Subpart K, issued under the authority of 23 U.S.C. 106, 109, 112, 115, 315, 320, and 402(a), and 23 CFR 1.32 and 49 CFR 1.85; and the Federal Highway Safety Improvement Program, 23 U.S.C. Section 13.

This Procedure serves as a guideline for use by the Alabama Department of Transportation (Department or ALDOT) for other construction and maintenance activities.

[Part VI of the Manual on Uniform Traffic Control Devices \(MUTCD\)](#), and associated supplements and handbooks such as the [American Traffic Safety Services Association’s \(ATSSA\) Quality Guidelines for Temporary Traffic Control Devices](#), sets forth basic principles and prescribe standards for the design, application, installation, and maintenance of the various types of traffic control devices for highway and street construction, maintenance operations, and utility work. These manuals are not intended to address in depth the variety of situations that occur in providing traffic control in work zones. Although those responsible for traffic control and work area protection have attempted to develop some guidelines and measures, a coordinated and comprehensive effort to develop greater uniformity is desirable. It is the intent of this document to provide these guidelines and assist in the MUTCD being properly implemented.

Guidelines For Operation (GFO) 3-61 and GFO 3-65 are referenced as additional guidance documents. GFO 3-61 provides guidance for the Department to follow for the purpose of safely and efficiently accommodating traffic through work zones. This GFO includes processes for use in developing a Transportation Management Plan, a Traffic Control Plan, a Traffic Operations component, and a Public Information component. The GFO further defines a Significant Project and the process to follow when developing the previously mentioned plans and components for significant projects. GFO 3-65 provides guidance for the Department to follow in order to decrease the likelihood of fatalities and injuries to workers and road users within the work zone. This GFO addresses the use of positive protection devices, exposure control/other traffic control measures, uniformed law enforcement officers, and addresses work vehicles entering and exiting traffic lanes.

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## DEFINITIONS

Wherever the following terms or abbreviations are used in the document, the intent and meaning shall be interpreted as follows:

**Area** - An engineering organization of the Department within a Region charged with all functions of the Department as related to the operations of its respective location.

**Area Traffic Engineer** - The engineer in charge of traffic operations in a designated Area.

**AUTCR** - Alabama Uniform Traffic Crash Report.

**ATSSA** - American Traffic Safety Services Association.

**CARE** - (Critical Analysis Reporting Environment) a system developed through the Center for Advanced Public Safety (CAPS) at the University of Alabama and used to access crash data, analyze crash statistics, and locate crashes to improve traffic safety statewide on all public roads.

**Contractor** - The individual, partnership, firm, corporation, or any acceptable combination thereof, contracting with the State for performance of prescribed work.

**Department or ALDOT** - Alabama Department of Transportation, as constituted under the laws of Alabama for administration of highway work.

**Director** - The Chief Executive Officer of the Department as created by law, also referred to herein as Transportation Director.

**FAPG** - Federal-Aid Policy Guide.

**FHWA** - Federal Highway Administration.

**GFO** - (Guideline for Operation) the policies and procedures under which the Department operates.

**Highway Safety Improvement Program (HSIP)** - ALDOT Safety Program using Federal Safety Funds to identify high crash locations and develop counter measures for improvement using cost- benefit analysis procedures within budget limitations. The HSIP consists of three main components: the Strategic Highway Safety Plan (SHSP), the State HSIP or program of highway safety improvement projects, and the Railway-Highway Crossing Program (RHCP).

**MUTCD** - Manual on Uniform Traffic Control Devices for Streets and Highways, published by the U.S. Government Printing Office.

**Project** - The specific section of the highway together with all appurtenances and construction to be performed thereon under the contract.

**Project Personnel** - personnel assigned to a project on behalf of the Department for the purpose of inspecting the work performed by the Contractor. Project Personnel may include, but not be limited to, the Project Manager (PM), Project Traffic Control Inspector (PTCI), and other ALDOT inspectors assigned to a project, along with employees of consultants, cities, and counties performing similar inspection duties.

**PM** - (Project Manager) The personnel in charge of a designated project for the Department.

**PTCI** - (Project Traffic Control Inspector) The person designated to be responsible for reviewing traffic control devices on a particular project for the Department.

**Region** - An engineering organization of the Department in a geographical area of the State charged with all functions of the Department as related to the administration of its respective location.

**Region Engineer** - The engineer in charge of a designated Region of the Department.

**State** - State of Alabama.

**State Construction Engineer** - The engineer in charge of general administration of the Department's contract construction work.

**State Design Engineer** - The engineer in charge of establishing design policy and standards as well as overseeing the development of roadway plans for the Department.

**State Traffic Operations Engineer** - The engineer in charge of traffic engineering, traffic control, and traffic control devices for the Department.

**State Traffic and Safety Operations Engineer** - The engineer in charge of safety engineering, safety infrastructure elements, and highway safety evaluations for the Department.

**Statewide Process Review** - The review of selected projects conducted by various ALDOT personnel for the purpose of making recommended improvements or modifications to the work zone and assessing the effectiveness of the Traffic Control Procedure. These reviews are conducted in response to the requirements of 23 CFR 630 Subpart J.

**TCP** - (Traffic Control Plan) A plan that describes Temporary Traffic Control (TTC) measures to be used for handling traffic through a specific highway or street work zone or project.

**Traffic and Safety Operations Section** - The office within the Traffic Engineering Division of the Design Bureau charged with administration of the Highway Safety Improvement Program pursuant to 23 U.S.C., Sections 130, 148, 152 and 407 and implementing regulations.

**Work Zone** - An area of highway with construction, maintenance, or utility work activities.

**Work Zone Crash** - A traffic crash in which the first harmful event occurs within the boundaries of a work zone or on an approach to or exit from a work zone, resulting from an activity, behavior, or control related to the movement of the traffic units through the work zone.

**Work Zone Impacts** - Work zone-induced deviations from the normal range of transportation systems safety and mobility. These impacts may extend beyond the physical location of the work zone itself and may occur on the roadway on which the work is being performed as well as other highway corridors.

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## IMPLEMENTATION

**GENERAL.** After a project is placed under contract, the Contractor may be permitted to develop a TCP to be used in lieu of the TCP provided in the construction plans. The Contractor's plan will be approved for use only if the Department finds that the Contractor's plan is as good as or better than the plan provided in the construction plans. The Contractor may also be permitted to offer a revision to only a portion of the existing TCP. To receive approval for changes to the TCP, the Contractor must submit a detailed alternate plan, or revision, to the Region Engineer through the Project Manager.

The Region Engineer shall submit the proposed revisions, along with recommendations, to the State Construction Engineer for review and approval and further handling.

The Contractor will not be permitted to implement any part of an alternate plan, or revision, until written approval has been given by the Department.

For proposed TCP revisions initiated by Department personnel, the PM shall submit the revision to the Region Engineer. The Region Engineer shall submit the revision, along with recommendations, to the State Construction Engineer for review and approval and further handling. The State Construction Engineer will make the FHWA aware of TCP changes for projects on which the FHWA has full involvement.

The PM may approve minor TCP changes for immediate implementation as deemed necessary.

**PROJECT TRAFFIC CONTROL INSPECTOR.** Before work begins on a project, the PM shall designate, in writing, a qualified person to be responsible for reviewing the traffic control devices on the project. This person shall have received training as provided by the [Training](#) section of this Procedure and shall be known as the Project Traffic Control Inspector. The PTCI shall report to the PM and have the principal duty of keeping the PM informed of the adequacy and effectiveness of the traffic control devices on the project. The PM may serve as the PTCI.

All traffic control devices should be inspected prior to installation for compliance with plans and specifications. The PTCI shall inspect the installation of the devices and make regular inspections of the in-place traffic control devices to determine if they are being properly maintained ([refer to the ALDOT Traffic Control Device Quality Guide](#)). The PTCI shall document each inspection by completing, [Form C-25, Daily Inspection of Traffic Control Devices](#). The PTCI shall also perform periodic nighttime inspections to confirm that proper maintenance is being performed on the devices. These nighttime

inspections shall also be documented on Form C-25. The Form C-25 shall be submitted to the PM for review.

The PM will be responsible for notifying the Contractor of any deficiencies and administering the contractual enforcement requirement. Dates of such notification and dates of corrective action by the Contractor should be noted on Form C-25.

**CONTRACTOR LIABILITY.** This Procedure does not relieve the Contractor of the prime responsibility to continually inspect and maintain the traffic control items and to safely handle traffic through the work area. The Contractor is responsible for traffic safety on the project. The Department's responsibilities are limited to identifying acceptable control levels and taking measures to effectively enforce contract provisions. The Contractor's responsibilities shall not be relieved by the Department's failure to enforce any provision.

**ASSISTANCE FROM LOCAL LAW ENFORCEMENT OFFICERS.** The PM should establish a cooperative relationship with the law enforcement agency responsible for traffic crash investigation. The PM should request to be notified by the state and local law enforcement of all traffic crashes that occur within the project limits. The PM should also be familiar with the Department's [agreement with the Alabama Law Enforcement Agency](#) providing for the use of State Troopers on construction projects. When needed, arrangements should be made through the Area Construction Engineer's office for Trooper assistance with traffic handling and speed control through the construction project.

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## TRAINING

Project Personnel make decisions on temporary traffic control measures in work zones as appropriate for the particular job or circumstance. The training needed for making these types of decisions is available through the [Department's On-Line Temporary Traffic Control training course](#). The available training includes information related the need for traffic safety, traffic control planning, quality standards for traffic control devices, and training in application and techniques utilized and prescribed by the MUTCD, as well as human factors in safety and traffic control, such as, proper attire, attitude, and appearance of workers.

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## PROCESS REVIEW AND EVALUATION

### PROJECT REVIEW.

**CRASH EVALUATION.** The PTCI will report all known work zone crashes to the PM. The PTCI will review the circumstances involved in the crash and, if immediate changes in traffic control are warranted, will recommend those changes to the PM. Subsequently, the PTCI shall complete [Form C-25A, Crash Report](#), and should obtain AUTCRs from the appropriate law enforcement agency. This information, as well as information required of the Contractor by [Subarticle 107.14\(c\) of the Standard Specifications](#), will be used for Departmental purposes only to

evaluate the TCP consistent with the [Introduction](#) and [Coordination with the Highway Safety Improvement Program](#) sections of this Procedure.

**CRASH REPORTING.** The PM will submit the documentation gathered/compiled for each known work zone crash, including any additional comments, to the District and Area offices for review as soon as possible following the crash.

Notification of crashes occurring in work zones will be made available to the offices of the State Construction Engineer, State Traffic Operations Engineer, and State Traffic and Safety Operations Engineer through the CARE reporting system. Hard copies of crash reports will also be made available to these offices upon request by contacting the Safety Program Administrator in the Safety Planning Section of the Design Bureau. The State Traffic Operations Engineer may review this information and submit a copy of the report with recommendations or comments to the State Construction Engineer and the State Design Engineer. The State Design Engineer may distribute TCP improvement recommendations to all offices within the Department having responsibility for preparation and/or review of TCPs.

**FIELD OBSERVATIONS.** During the daily course of work, all Project personnel will be observant of the work zone for the purpose of identifying work zone impacts and, when possible, taking action toward the alleviation of those impacts. Observations may include occurrences of vehicular congestion, pedestrian impediments, hindrances to emergency vehicles, and crash patterns. Actions to alleviate these impacts may include (i) modification of the traffic control plan in accordance with the [Implementation, General](#) section of this Procedure, (ii) adjustments to the contractor's operations, or (iii) other changes as deemed appropriate.

These observations will be documented in CAMMS on the DWR under the Traffic Control remark type and will include information such as date, time, location of impact, length or duration of impact, TCP phase, and any action taken as a result of the occurrence.

**REGION REVIEW.** The Area Traffic Engineer shall periodically review traffic control devices and traffic operations on construction projects. Reviews should be conducted a reasonable time after initial setup and following major phase changes. Any deficiencies shall be reported to the PM. Any report prepared may be submitted to the State Traffic Operations Engineer when deemed appropriate by the Region Engineer.

**STATEWIDE PROCESS REVIEW.**

**REVIEW TEAM.** A Review Team consisting of the State Construction Engineer, State Design Engineer, State Traffic Operations Engineer, Region Engineer, or their designees, shall annually review selected projects throughout the State. The State Construction Engineer shall serve as the chairman of the Review Team. An FHWA representative may accompany the Review Team and provide input. A significant project as defined by 23 CFR 630 Subpart J, will be included when available.

PROCEDURE REVIEW. The Review Team will assess the effectiveness of the Procedure on a state wide basis and recommend revisions to the Procedure when deemed appropriate. All revisions to the Procedure shall be approved by the Transportation Director and the FHWA.

PROJECT SPECIFIC REVIEW. The Review Team will make field observations and review available work zone crash data and operational information for the purpose of recommending improvements or modifications to the work zone.

REPORTING. The Chairman of the Review Team shall provide a written report to the FHWA, the Design Bureau, the Maintenance Bureau, the Region, and other Departmental offices as appropriate.

**DISPOSITION OF RECORDS.** After the Department accepts a construction project for maintenance, as defined in [Item 105.15\(c\)1. of the Standard Specifications](#), all records and reports generated and distributed as part of the Department's review and evaluation of traffic crashes shall be forwarded to the Traffic and Safety Operations Section of the Design Bureau for appropriate processing. Copies of these records and reports will not be filed or maintained in other offices or locations by the Department.

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#### **COORDINATION WITH THE HIGHWAY SAFETY IMPROVEMENT PROGRAM AND WITH 23 CFR 630 SUBPART J**

All activities of the Department, its employees, contractors, agents and assigns conducted pursuant to this procedure including, but not limited to, record gathering and retention, inspection, evaluation, review, and reporting, shall be deemed and are a part of the Highway Safety Improvement Program as administered by the Traffic and Safety Operations Section of the Design Bureau. Crash reports are gathered and reviewed pursuant to 23 CFR 630 Subpart J.

# ALABAMA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL DEVICE QUALITY GUIDE

*...providing guidance on  
proper inspection of  
traffic control devices  
used in work zones.*



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# ALDOT Traffic Control Device Quality Guide

## Introduction

Temporary Traffic Control (TTC) devices and features play a crucial role in ensuring the safety of motorists, pedestrians, and workers in construction work zones. To achieve this goal, it is important to adhere to the standards and guidelines set forth by organizations such as the Federal Highway Administration (FHWA), the [Manual on Uniform Traffic Control Devices](#) (MUTCD), and the Alabama Department of Transportation (ALDOT) Standard Specifications and Drawings.

The MUTCD, specifically Part 6, serves as the national standard for the design and placement of TTC devices and features used in construction work zones. The MUTCD outlines guidelines for the proper use of signs, channelizing devices (i.e., cones, drums, channelizers, etc.), barricades (i.e., Type I, II, and III), concrete barrier rail, traffic stripe, and other TTC devices to manage traffic in construction zones, incidents, and other temporary situations. The FHWA provides guidance on how to implement the MUTCD, while the ALDOT Standard Specifications and Drawings provide specific instructions for implementing TTC devices and features used on state construction projects.

The ALDOT Traffic Control Device Quality Guide is intended for use by ALDOT Project Traffic Control Inspectors (PTCIs) to evaluate the adequacy, proper installation, and continued maintenance of the TTC plan by the contractor or subcontract in charge of temporary traffic control on ALDOT construction projects. This document is separated into two parts. Part 1 provides quality guidelines on the adequacy and appearance of TTC devices categorized into acceptable, marginal, and unacceptable conditions. Part 2 provides project specific situations for ALDOT PTCIs to reference when determining the acceptability of a TTC device condition and field installation. [ATSSA's Quality Guidelines for Temporary Traffic Control Devices](#) was referenced, with permission, when developing ALDOT's Traffic Control Device Quality Guide.

In this context, this Guide aims to provide a comprehensive reference for the proper use, placement, and maintenance of TTC devices and features, ensuring the safety of all road users. The Guide covers topics such as selecting the appropriate TTC device or feature, determining the correct placement and spacing, providing adequate signage and warning, and ensuring proper maintenance and inspection of the devices. By adhering to this Guide, ALDOT can effectively manage traffic in temporary situations and improve safety for all users.

## Relevant Documents and Training Courses

### [MANUAL ON TRAFFIC CONTROL DEVICES \(MUTCD\) – 2009 Edition](#)

- Part 6: Temporary Traffic Control Zones

### [ALDOT GUIDELINE FOR OPERATIONS \(GFOs\) AND STANDARD OPERATING PROCEDURE \(SOP\)](#)

- ALDOT GFO 1-5: Hard Hats, High Visibility Safety Apparel, and Whistles
- ALDOT GFO 3-61: Work Zone Safety and Mobility
- ALDOT GFO 3-65: Temporary Traffic Control Devices
- ALDOT GFO 4-9: Proper Use of Regulatory Speed Limit Signs in Construction Work Zones
- [ALDOT Standard Operating Procedure \(SOP\) for Determining Speed Limits in a Work Zone](#)

### [ALDOT STANDARD SPECIFICATIONS](#)

- [Section 107.14\(c\): Responsibility for Damage Claims – Reporting Accidents](#)
- [Section 701: Traffic Stripe](#)
- [Section 703: Traffic Control Markings and Legends](#)
- [Section 705: Pavement Markers](#)
- [Section 726: Portable Concrete Safety Barriers and Impact Attenuators](#)
- [Section 728: Truck Mounted Impact Attenuator](#)
- [Section 740: Traffic Control Devices for Construction Work Zones](#)
- [Section 741: Portable Sequential Arrow and Chevron Sign Unit](#)
- [Section 742: Portable Changeable Message Signs](#)
- [Section 745: Uniformed Police Officers](#)
- [Section 757 Portable Traffic Signal](#)

### [ALDOT STANDARD AND SPECIAL DRAWINGS](#)

#### **Traffic Control Devices for Construction Work Zones ([Section 74000-74007](#))**

- B-107-2: Perforated Square Steel Tubing (PSST) Barricades Type I, Type II, and Type III & Vertical Panels Type I and II
- TCD 100: Details for Traffic Channelization Devices

#### **Portable Changeable Message Signs ([Section 74200-74203](#))**

- PCMS-710: Details of Portable Changeable Message Signs (PCMS)

#### **Pavement Markers ([Section 70500-70511](#))**

- PM-705-1: Details of Pavement Markers Class A, A-H, and B

#### **Portable Concrete Safety Barriers and Impact Attenuators ([Section 72600-72659](#))**

- PNJB-629: 350, TL-3 Previously Cast Concrete Barrier – Type 6 (Portable)
- PCBM-726-JJ: Mash, TL-3 Precast Concrete Barrier – Type 6 J-J Hook Design (F-Shape) (Portable)
- GTE-629: 350, TL-3 Previously Cast Concrete Barrier, Type 6A for use with Approved Impact Attenuator System (Portable)
- IA-720-MWS: Details of Sled System Impact Attenuator (MASH) (Work Zone Only)
- IA-720-MWA: Details of Absorb-M System Impact Attenuator (MASH) (Work Zone Only)
- IA-720-M: Details of QuadGuard Elite Impact Attenuator (MASH) (Work Zone Only)
- IA-720-N: Details of Quest System Impact Attenuator (Work Zone Only)
- IA-720-Z: Details of ACZ-350 Impact Attenuator (Work Zone Only)
- IA-720-P: Details of Triton Impact Attenuator (Work Zone Only)
- IA-720-Q: Details of QuadGuard System Impact Attenuator (Work Zone Only)
- IA-720-T: Details of Tracc Impact Attenuator (Work Zone Only)
- IA-720-V: Details of Absorb-350 Impact Attenuator (Work Zone Only)
- IA-720-W: Details of Tau-II System Impact Attenuator (Work Zone Only)
- IA-720-X: Details of SCI (TL-2) Impact Attenuator (Work Zone Only)

### [ALDOT Traffic Control Details](#)

- [SPD 2000: General Traffic Control Plan Notes](#)
- [SPD 2001: Standard Details for Traffic Control Plans](#)
- [SPD 2001A: Standard Details for Traffic Control Plans](#)

### [ALDOT Construction Manual](#)

- [700 SG-1 Traffic Control Procedure and Quality Guide](#)

### [ALDOT LIST OF QUALIFIED MATERIALS, SOURCES, AND DEVICES](#)

- [List II-31: Portable Barriers and Attenuators](#)
- [List IV-3: Work Zone Traffic Control Devices](#)

- [List IV-4: Miscellaneous Traffic Control Devices](#)
- [List V-1: Reflective Sheeting for Traffic Control](#)
- [List V-3: Temporary Traffic Marking Materials](#)

## CONSTRUCTION INFORMATION MEMORANDUM

- [No. 3 – 2019: Use of ALEA Troopers and Uniformed Police Officers in Construction Work Zones](#)

## ATSSA REFERENCES & TRAINING COURSES

- [ATSSA Quality Guidelines for Temporary Traffic Control Devices](#)
- [ATSSA Traffic Control Technician \(TCT\) Training Course](#)
- [ATSSA Flagger Training Courses](#)
- [ATSSA Traffic Control Supervisor \(TCS\) Training Course](#)

## ADDITIONAL TRAINING COURSES

- [Temporary Traffic Control Training for ALDOT Construction Inspectors](#)

**Course Description:** A need exists for road building contractors, project inspectors, and project engineers to be properly trained in temporary traffic control installations and be able to assess conditions throughout the entire project duration that assists with evaluation, identification, and assessment of existing hazards while also providing guidance for corrective measures. To fulfill this need, this training course in Temporary Traffic Control (TTC) will aid safety professionals, designers, project engineers, inspectors, maintenance personnel, contractors, and employees in the field in the proper application of TTC practices and procedures.

The Alabama Department of Transportation standard specifications, standard drawings, guidelines for operation, traffic control procedure, inspection process, and crash reporting procedure are highlighted throughout the course and provided as an example.

The learning objectives are for participants to: (1) cover the principles used in TTC and work zone safety, and explain the liability associated with improper application of TTC; (2) acquaint project personnel with the relevant provisions of the MUTCD and relevant ALDOT documents; (3) emphasize the FHWA requirements for traffic control procedures for work zones; and (4) review documentation requirements.

- [Alabama Law Enforcement Construction Zone Safety Training](#)

**Course Description:** The purpose of this course is to make law enforcement officers better aware of hazards associated with working in construction zones and offer tips to enhance their safety as they ensure the safety of the construction crews and the traveling public. The completion of this training is a requirement for officer's eligibility to work in ALDOT construction zones as mandated by the Code of Federal Regulations 23 CFR 640 Subpart J.

Throughout this course, officers will be given the basic knowledge that can save lives, including their own when working in a construction work zone. Law enforcement officers receive vital safety training related to the normal course of duty. This training is also important because construction zones have the potential for great danger.

This course examines the roles and responsibilities of everyone involved in construction work zones. Officers will be provided with an understanding of work zones including zone set up, terminology, and operating procedures. Recommendations will be offered as to practices that officers should incorporate into their presence in a construction work zone.

## PART 1: TTC Device Quality Guidelines

Part 1 of ALDOT Traffic Control Device Quality Guide is intended to provide quality guidelines for temporary traffic control devices used on state construction projects.

The following devices are covered in Part 1:

- regulatory, warning, and guide signs,
- sign coverings,
- drums,
- cones,
- 42-in. channelizer cones,
- Type I, II, and III Barricade and Vertical Panels, and
- Worker Safety Vests.

Project Traffic Control Inspectors (PTCIs) can generically use the following definitions to determine the acceptability of TTC devices used on state construction projects. The quality of TTC devices can generally be considered acceptable, marginal, or unacceptable as defined below. The PTCI should also reference the appropriate ALDOT Specifications and Drawings for additional information and guidance pertaining to specific TTC devices.

**Acceptable Conditions:** TTC devices are considered acceptable if they are in good condition and meet the required standards for design, placement, and maintenance. These devices are free from defects, damage, or wear that could compromise their effectiveness in managing traffic in work zones. Additionally, they are placed in accordance with the approved ALDOT traffic control plan, provide adequate warning to motorists, and are properly maintained and inspected.

**Marginal Conditions:** TTC devices are considered marginal if they show some signs of wear or damage but are still capable of fulfilling their intended function. For example, a traffic cone that is slightly dented or scratched may be considered marginal, but still acceptable for use. However, devices in marginal condition should be monitored closely and replaced if they show any signs of further deterioration or damage.

**Unacceptable Conditions:** TTC devices are considered unacceptable when they are in poor condition and do not meet the required standards for design, placement, and maintenance. These devices may be damaged, worn, or misplaced, which can compromise their effectiveness in managing traffic in work zones. Such devices should be immediately removed from service and replaced with acceptable devices.

It is essential to regularly inspect TTC devices and features to ensure that they are in acceptable condition and in compliance with the MUTCD and ALDOT Standard Specifications and Drawings. This helps to maintain safety for all road users in ALDOT construction work zones.

## Regulatory, Warning, & Guide Signs – Device Quality Guidelines

**ACCEPTABLE:** The sign face is the correct color, is retroreflective, and is generally in good condition. The sign face, legend, and border are free of major scratches and abrasions and there is little loss of lettering or sign border.

The message is clean and legible per ALDOT standards and the design criteria of the MUTCD. Regulatory Signs shall use a Type IV sheeting, whereas warning signs shall use a Type XI fluorescent sheeting.



**MARGINAL:** Color fading is evident, and the sign panel contains multiple scratches or abrasions, but maintains its color, retroreflective properties, and legibility during both the day and night. Sign legends, letters, or borders may have slight loss and minor scratches; however, the message is legible per ALDOT standards and the design criteria of the MUTCD.

The surface should be clean and not have large areas covered in residue (i.e., asphalt, cement slurry, paint, etc.).



**UNACCEPTABLE:** Signs that are dirty or covered in residue (i.e., asphalt, cement slurry, paint, etc.) and are no longer legible. Sign lettering, symbols, or borders experiencing significant loss and have major damage and scratches that renders the message illegible per ALDOT Standards and the MUTCD.

Signs are unacceptable if they are bent/damaged, and the entire surface area of the sign is not maintained.

If a sign experiences noticeable color fading, loss of retroreflective properties, or bleed through of a previous message, the signs are considered unacceptable and should be replaced.



## Sign Coverings – Device Quality Guidelines

**ACCEPTABLE:** The sign face is fully covered with ½-in. exterior plywood, an aluminum composite material, or an aluminum sign. Sign coverings must be sized to the exact size and shape so that no portion of the sign is visible. The covering should be adequately secured to prevent damaging the sign and becoming dislodged.

Covering material shall be maintained in a neat and workmanlike manner during its use.



**MARGINAL:** The sign face is mostly covered but some of the sign elements are legible, excluding the legend. The covering material is mostly sized to match the size and shape of the sign; however, edges and corners are visible.

Covering material shall be maintained in a neat and workmanlike manner during its use.



**UNACCEPTABLE:** the sign covering material only covers the legend and large areas of the sign are exposed and visible. The covering is not the correct size or shape. The sign cover material is not opaque and allows the legend to show through the material, allowing the sign to be read and interpreted.

The sign covering material is not properly secured to the sign assembly, allowing the sign legend to be visible and interpreted. Material not properly secured to the sign assembly may cause damage to the surface of the panel.

Material should not have letters or identification markings when used to as a sign cover (i.e., contractor logos, markings, etc.)



## Drums – Device Quality Guidelines

**ACCEPTABLE:** The drum is the proper size (36 in.), proper color (orange fluorescent), and has Type IV retroreflective sheeting with alternating 6-in. wide alternating orange fluorescent and white bands per ALDOT Standard Drawing TCD-100. The drum is in its original shape, is clean, and maintains the full appearance of its surface area.

Minor abrasions, tears, and scratches in the sheeting are acceptable if the quality of retroreflective properties is maintained for nighttime conditions.



**MARGINAL:** Color fading of the retroreflective sheeting is evident, contains multiple scratches or tears, but maintains most of its retroreflective properties. The original shape of the drum is maintained, however minor dents are allowed if it does not impact the retroreflective properties of the sheeting.

The surface should be clean and not have large areas that are dirty or covered in residue (i.e., asphalt, cement slurry, paint, etc.).



**UNACCEPTABLE:** The color of the drum has faded considerably, and large portions of the retroreflective bands have been damaged, missing, or peeling off making the drum ineffective.

Other unacceptable conditions include deformation (i.e., dents, material fracture, etc.) in which the drum does not maintain its original size and shape.

If the drum is dirty or covered with residue (i.e., asphalt splatter, concrete slurry, paint, etc.), it is considered ineffective and unacceptable. These devices should be cleaned or replaced.



## Cones – Device Quality Guidelines

**ACCEPTABLE:** The cone is the proper size (36 in.), proper color (orange fluorescent), and has Type IV retroreflective sheeting with a 6 in. top band and a 4 in. lower band separated by 2 in. per ALDOT Standard Drawing TCD-100. The cone is in its original shape, is clean, and maintains the full appearance of its surface area.

Minor tears and scratches in the sheeting are acceptable if the quality of retroreflective properties is maintained for nighttime conditions.



**MARGINAL:** The sheeting is faded, contains multiple scratches or tears, but maintains its retroreflective properties. The original shape of the cone is maintained with minor dents.

The surface should be clean and not have large areas covered in residue (i.e., asphalt splatter, concrete slurry, paint, etc.).



**UNACCEPTABLE:** The color of the cone has faded considerably, and large portions of the retroreflective bands have been damaged or are peeling off making the device ineffective.

Other unacceptable conditions include deformation (i.e., dents, material fracture, etc.) in which the cone does not maintain its original size and shape.

If the cone is dirty or covered with residue (i.e., asphalt splatter, concrete slurry, paint, etc.), the cone is considered ineffective and unacceptable. These devices should be cleaned or replaced.



## 42 in. Channelizer Cones – Device Quality Guidelines

**ACCEPTABLE:** The channelizer cone is the proper size (42 in.), proper color (orange fluorescent), and has Type IV retroreflective sheeting with alternating 6-in. wide alternating orange and white bands per ALDOT Standard Drawing TCD-100. The channelizer cone is in its original shape, is clean, and maintains the full appearance of its surface area.

Minor tears and scratches in the sheeting are acceptable, if the quality of the retroreflective properties is maintained for nighttime conditions.

**MARGINAL:** The sheeting is faded, contains multiple scratches or tears, but maintains its retroreflective properties. The original shape of the channelizer cone is maintained with minor dents.

The surface should be clean and not have large areas covered in residue (i.e., asphalt splatter, concrete slurry, paint, etc.).

**UNACCEPTABLE:** The color of the channelizer cone has faded considerably, and large portions of the retroreflective bands have been damaged or are peeling off making the device ineffective and difficult to see during nighttime conditions.

Other unacceptable conditions include deformation (i.e., dents, material fracture, etc.) in which the device does not maintain its original size and shape.

If the device is dirty or covered with residue (i.e., asphalt splatter, concrete slurry, paint, etc.), the channelizer cone is considered ineffective and unacceptable. These devices should be cleaned or replaced.



## Type I, II, & III Barricades & Vert. Panels - Device Quality Guidelines

**ACCEPTABLE:** All panels must be retroreflective using Type XI retroreflective sheeting. The panels should not be bent or deformed to the extent that visibility of the surface area is diminished. Panels may have minor abrasions or scratches that result in very little loss of retroreflective sheeting. The orange diagonal stripe is vivid. The orange and white diagonal stripes provide contrast.

The surface should be clean and not have large areas covered in residue (i.e., asphalt splatter, concrete slurry, paint, etc.).



**MARGINAL:** there are numerous surface abrasions on the panel surface that do not result in large areas of missing retroreflective sheeting. Some color fading is evident; however, the panels still maintain their retroreflective properties. The orange is still vivid. The orange and white diagonal stripes continue to provide contrast.

The surface should be clean and not have large areas covered in residue (i.e., asphalt splatter, concrete slurry, paint, etc.).



**UNACCEPTABLE:** The surface has experienced surface abrasions and scratches over a high percentage of the panel area. Noticeable loss of retroreflective material is evident and color fading is obvious. Panels are missing or otherwise damaged or broken resulting in substantial loss of surface area.

If large areas of the panel are dirty or covered with residue (i.e., asphalt splatter, cement slurry, dirt, etc.) thereby affecting panel visibility and retroreflectivity, it is considered unacceptable. These devices should be cleaned or replaced.



## High Visibility Safety Apparel – Device Quality Guidelines

**ACCEPTABLE:** New high visibility safety apparel must conform with the ANSI/ISEA 107-2010 or 107-2015 standard, be a Class II or Class III per ALDOT GFO 1-5, have vivid color contrast, and excellent retroreflectivity.

Used high visibility vests that still have vivid color contrast, high retroreflectivity, and little to no soiling resembling a like-new condition are considered acceptable.



**MARGINAL:** The apparel has good retroreflectivity, slight fading, and some soiling. The garment has exceeded the wash rating per the manufacturer’s label (typically a max of 25 washes). Workers should plan to obtain a replacement vest soon.



**UNACCEPTABLE:** the apparel exhibits heavy soiling, faded colors, poor retroreflectivity, and has been washed more than 25 times. The retroreflective stripes are deteriorating and the product has poor color contrast.

The vest is no longer acceptable and should be replaced.



Any depiction of high visibility safety apparel in this Quality Guide is intended as guidance for apparel worn by ALDOT personnel. It is not intended for use by ALDOT to inspect or monitor apparel worn by the contractor’s employees. The contractor is reminded of the requirement to provide its employees with high visibility safety apparel meeting 23 CFR Part 634 titled Worker Visibility Rule.

## **PART 2: TTC Device Condition, Installation and Placement Guidelines**

Part 2 of this ALDOT guidance document is intended to provide PTCIs with project-specific examples showing acceptable and unacceptable conditions associated with the condition, installation, or placement of TTC devices used on state construction projects.

The following devices covered in Part 2 include:

- Signs – Condition
- Signs – Installation/Placement
- Sign Coverings
- Drums – Condition
- Drums – Installation/Placement
- Cones – Condition
- Cones – Installation/Placement
- Type III Barricades – Condition/Placement
- Vertical Panels – Condition/Installation/Placement
- Striping – Installation/Maintenance
- Portable Changeable Message Signs
- Portable Concrete Barrier Rails
- Equipment and Material Placement
- High Visibility Safety Apparel
- Flaggers
- Law Enforcement Officers (LEO) Positioning

## Construction Signs – Condition

Acceptable (✓) | Unacceptable (✗)



✓ Good condition and visibility



✓ Good condition and visibility



✗ Damaged sign and minor scratches to sheeting



✗ "1/2" font is too small



✗ Incorrect font for "7"



✗ Screwdriver used to affix sign plate to panel

## Construction Signs – Condition (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Previous legend still visible



✗ Previous legend still visible



✗ Faded and discolored sheeting affecting retroreflectivity



✗ Faded and discolored sheeting affecting retroreflectivity



✗ Poor sheeting and retroreflectivity



✗ Scratched and damaged sheeting

## Construction Signs – Condition (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Damaged sign panel



✗ Sign is covered with paint residue



✗ Damaged sign posts



✗ 1000 FT font is too small and "FT" is redundant

## Construction Signs – Installation / Placement

Acceptable (✓) | Unacceptable (✗)



✗ Excessively high mounting of sign



✗ Sign out of plumb and "6" font too small



✗ Sign out of plumb



✗ Sign mounted too low



✗ Sign mounted too low



✗ Sign mounted too low

## Construction Signs – Installation / Placement (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Sign mounted too low



✗ Sign mounted too low



✗ Speed limit sign blocked



✗ Signs installed too close together



✗ Inadequate sign spacing



✗ Signs installed too close together

## Construction Signs – Installation / Placement (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Improper sign spacing



✗ Signs installed too close together



✗ Sign out of place (too close to curve)



✗ Signs installed too close together



✗ Vegetation limiting sign visibility (maintenance required)



✗ All signs should be removed from roadway when work is no longer on-going

## Construction Signs – Installation / Placement (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Sign installed too close to PCMS



✗ Conflicting speed limit signs



✗ Confusing sign sequencing  
(‘Road Work Ahead’ followed by ‘End Road Work’ sign)



✗ Vegetation limiting sign visibility  
(maintenance required)

## Construction Signs – Sign Covering

Acceptable (✓) | Unacceptable (✗)



✓ Sign properly and completely covered



✓ Sign properly and completely covered



✓ Sign sequence properly and completely covered



✗ Signs and plaques should be covered or removed since grooved pavement no longer exists



✓ Sign and plaque properly covered



✗ Sign and plaque not properly covered and sign covering is incorrect shape

## Construction Signs – Sign Covering (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Conflicting speed limit signs  
("Speed Limit 50" sign not properly covered)



✗ Sign not completely covered  
and covering is incorrect size and shape



✗ Sign cover maintenance required



✗ Sign and plaque not properly covered



✗ Sign not properly covered  
and covering is incorrect size and shape



✗ Sign cover should not have any markings  
and sign plaque not covered

## Construction Signs – Sign Covering (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Unacceptable sign covering



✗ Unacceptable sign covering



✗ Unacceptable sign covering



✗ Unacceptable sign covering



✗ Unacceptable sign covering



✗ Sign not completely covered and sign cover should not have any markings

## Construction Signs – Sign Covering (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Sign not completely covered and sign covering is incorrect size and shape



✗ Sign not completely covered and sign cover is incorrect type, size and shape



✗ Unacceptable sign covering



✗ Sign not completely covered and sign covering has markings on it



✗ Missing sign covering



✗ Missing sign covering

## Drums – Condition

Acceptable (✓) | Unacceptable (✗)



✓ Retroreflective sheeting in good condition and ballast properly installed



✗ Damage to drum shape



✗ Covered with asphalt



✗ Covered with residue (e.g., concrete slurry)



✗ Missing retroreflective sheeting



✗ Sheeting too narrow (6" minimum width required)

## Drums – Condition (cont'd)

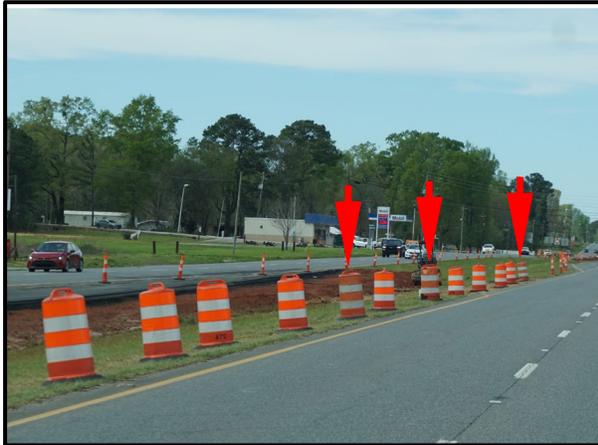
Acceptable (✓) | Unacceptable (✗)



✗ Retroreflective sheeting in poor condition



✗ Poor retroreflective at night (drum on right)



✗ Old drums comingled with new orange fluorescent drums with Type IV sheeting



✓ New drum w/Type IV sheeting versus  
✗ Old Drum w/Type III sheeting

## Drums – Installation/Placement

Acceptable (✓) | Unacceptable (✗)



✓ Good layout, spacing, and alignment



✓ Good spacing and alignment



✓ Good layout, spacing, and alignment



✓ Good spacing and alignment including construction entrance



✗ Poor Spacing – spacing is not uniform



✗ Old drums comingled with new orange fluorescent drums with Type IV sheeting

## Cones – Condition

Acceptable (✓) | Unacceptable (✗)



✓ Good condition with retroreflective sheeting



✓ Good condition with retroreflective sheeting



✗ Covered with asphalt splatter



✗ No retroreflective sheeting



✗ Unacceptable cone color – orange cone required  
(Note: yellow cone may be used to warn operators of overhead utility lines or clearance issues)



✗ Retroreflective sheeting in poor condition, color faded, and dirty

## Cones – Installation/Placement

Acceptable (✓) | Unacceptable (✗)



✗ Poor alignment, dirty, and poor sheeting



✗ Covered in asphalt splatter rendering retroreflectivity useless



✓ Good condition with retroreflective sheeting



✗ Partial asphalt splatter affecting retroreflectivity



✗ Completely covered in asphalt splatter rendering retroreflectivity useless

## Type III Barricades – Condition/Placement

Acceptable (✓) | Unacceptable (✗)



✓ Good condition and placement



✓ Properly labeled between top and mid-rail on upright



✗ Noticeable faded sheeting



✗ Broken mid-rail



✗ Sheetting peeling off top rail



✗ Missing top rail

## Type III Barricades – Condition/Placement (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Barricades placed at point of hazard and no buffer space provided

## Vertical Panels – Condition/Installation/Placement

Acceptable (✓) | Unacceptable (✗)



✓ Good condition, installation, alignment and spacing



✓ Good condition, installation, alignment and spacing



✓ Good condition, installation, alignment and spacing



✗ Panel not secured properly to post



✗ Maintenance required to upright and straighten vertical panel



✗ Not mounted at proper height

## Striping – Installation/Maintenance

Acceptable (✓) | Unacceptable (✗)



✓ Thorough stripe removal



✓ Thorough stripe removal



✗ Incomplete removal and conflicting stripe



✗ Incomplete removal and conflicting stripe



✗ Incomplete stripe removal



✗ Incomplete removal and conflicting stripe

## Striping – Installation/Maintenance (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Incomplete removal and conflicting stripe



✗ Incomplete removal and conflicting stripe



✗ Black paint used to cover stripe  
(Note: Engineer may allow covering of stripe in certain situations per Subarticle 701.03(i))



✗ Black paint used to cover stripe



✗ Worn striping – re-striping needed



Worn striping – re-striping needed

## Striping – Installation/Maintenance (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Worn striping – re-striping needed



✗ Conflicting stripe – removal needed

## Portable Changeable Message Signs

Acceptable (✓) | Unacceptable (✗)



✓ Good visibility and delineation



✓ Good visibility and delineation



✗ Too low, not level, and blocking another sign



✗ Wording is misspelled



✗ Unacceptable message displayed, message not center justified, and not delineated with drums



✗ Numerous pixels not working

## Portable Changeable Message Signs (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Unacceptable message displayed and improper drum delineation



✗ Unacceptable message displayed and improper drum delineation



✗ Numerous pixels not working, message not center justified, and improper drum delineation



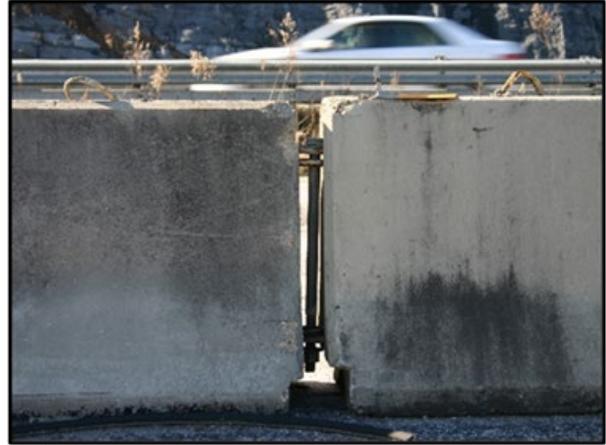
✗ Numerous pixels not working and improper drum delineation

## Portable Concrete Barrier Rail - Condition

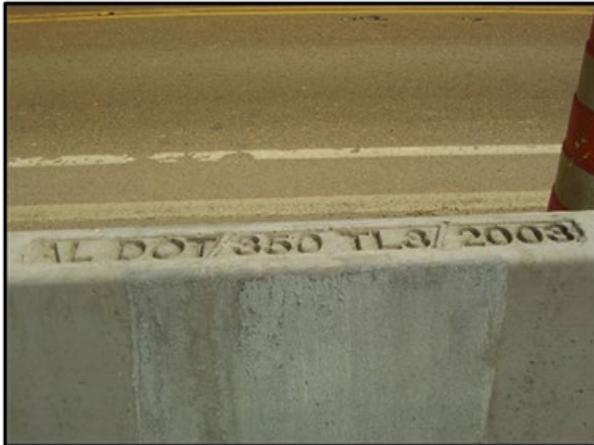
Acceptable (✓) | Unacceptable (✗)



✓ Good condition (J-J Hook Type) w/reflectors



✓ Good condition (bolt and loop type)



✓ Info properly embossed on Top of Rail



✗ Info not properly embossed during casting



✗ Physical damage – needs replacement



✗ Physical damage – needs replacement

## Portable Concrete Barrier Rail - Condition (cont'd)

Acceptable (✓) | Unacceptable (✗)



✓ Correct bolt size and secured with nut



✗ Bolt Too Small  
(Minimum Diameter 1 1/4" Required)



✗ Not properly bolted and secured at bottom



✗ Bolt not secured with nut at top



✗ Bolt not secured with nut at bottom



✗ No bolt to secure rail segments in place

## Portable Concrete Barrier Rail (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Field modification of original manufactured connection not allowed



Field modification of original manufactured connection not allowed



✗ No reflectors on top of rail



✗ Incorrect rail reflector color on top of rail (reflectors should match adjacent white stripe)

## Equipment and Material Placement

Acceptable (✓) | Unacceptable (✗)



✓ Traffic control devices properly stored in designated area



✓ Traffic control devices properly stored in designated area



✗ Need to keep pedestrian ways clear



✗ Equipment within 30 ft of travel way and being used to post a sign



✗ Material stored within 30 ft of travel way  
(Note: closer distances may be approved in certain cases by the Engineer per TC Note 702)



✗ Equipment within 30 ft of travel way  
(Note: closer distances may be approved in certain cases by the Engineer per TC Note 702)

## Equipment and Material Placement

Acceptable (✓) | Unacceptable (✗)



- ✗ Equipment within 30 ft of travel way  
(Note: closer distances may be approved in certain situations by the Engineer per TC Note 702)

## High Visibility Apparel

Acceptable (✓) | Unacceptable (✗)



✗ Workers on foot without high visibility vest



✗ Vest dirty/faded - needs replacement (worker on right)



✗ Vest dirty/faded (needs replacement) and vest not properly zipped



✗ Not wearing retroreflective vest (worker in middle of picture)



✗ Several vests not properly zipped



✗ Vest not properly zipped

## High Visibility Apparel (cont'd)

Acceptable (✓) | Unacceptable (✗)



✗ Vest not properly zipped



✗ Vest not properly zipped



✗ Vest not properly zipped



✗ Vest not properly zipped



✗ Vest not properly zipped and sleeves were removed from Class III vest



✗ Vest in ambient light versus same vest in LED light (considerable loss of retroreflectivity)

## Flaggers

Acceptable (✓) | Unacceptable (✗)



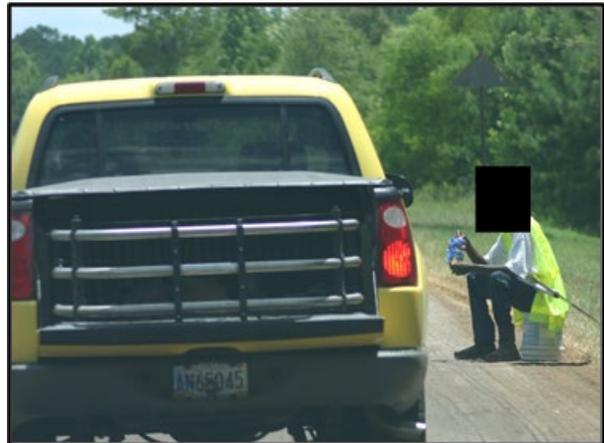
✗ Unacceptable stop/slow paddle and worker not properly wearing vest



✗ Unacceptable stop/slow paddle, not wearing vest, no escape route



✗ Not using stop/slow paddle or a flag



✗ Sitting down and not commanding attention of motorists



✗ Stop/slow paddle held up by drum



✗ Stop/slow paddle held up by drum

## Law Enforcement Officer (LEO) Positioning

Acceptable (✓) | Unacceptable (✗)



✗ LEO improperly positioned immediately upstream from work activity



✗ Improperly positioned in taper, on centerline upstream of work activity



✗ LEO improperly positioned upstream of TMA



✗ LEO improperly positioned upstream of TMA

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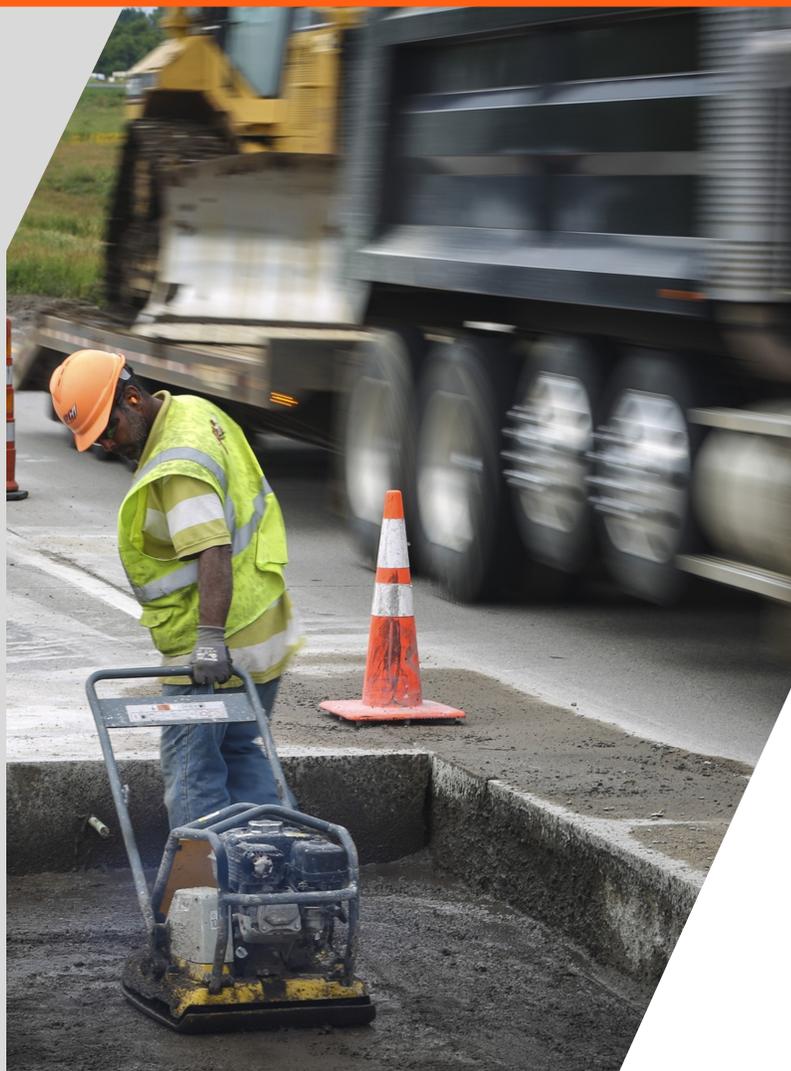
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*Alabama Department of Transportation*

FEDERAL-AID POLICY GUIDE Part 630  
PRECONSTRUCTION**Subpart J Work Zone Safety and Mobility**

**Authority:** 23 U.S.C. 106,109, 115,315,320, and 402(a); 23 CFR 1.32; and 49 CFR 1.48(b).

**Source:** [69 FR 54569](#), Sept. 9, 2004, unless otherwise noted.

**Sec. 630.1002 Purpose.23 CFR 630J**

Work zones directly impact the safety and mobility of road users and highway workers. These safety and mobility impacts are exacerbated by an aging highway infrastructure and growing congestion in many locations. Addressing these safety and mobility issues requires considerations that start early in project development and continue through project completion. Part 6 of the Manual On Uniform Traffic Control Devices (MUTCD)<sup>1</sup> sets forth basic principles and prescribes standards for the design, application, installation, and maintenance of traffic control devices for highway and street construction, maintenance operation, and utility work. In addition to the provisions in the MUTCD, there are other actions that could be taken to further help mitigate the safety and mobility impacts of work zones. This subpart establishes requirements and provides guidance for systematically addressing the safety and mobility impacts of work zones, and developing strategies to help manage these impacts on all Federal-aid highway projects.

**Sec. 630.1004 Definitions and explanation of terms.**

As used in this subpart:

*Highway workers* include, but are not limited to, personnel of the contractor, subcontractor, DOT, utilities, and law enforcement, performing work within the right-of-way of a transportation facility.

*Mobility* is the ability to move from place to place and is significantly dependent on the availability of transportation facilities and on system operating conditions. With specific reference to work zones, mobility pertains to moving road users efficiently through or around a work zone area with a minimum delay compared to baseline travel when no work zone is present, while not compromising the safety of highway workers or road users. The commonly used performance measures for the assessment of mobility include delay, speed, travel time and queue lengths.

*Safety* is a representation of the level of exposure to potential hazards for users of transportation facilities and highway workers. With specific reference to work zones, safety refers to minimizing potential hazards to road users in the vicinity of a work zone and highway workers at the work zone interface with traffic. The commonly used measures for highway safety are the number of crashes or the consequences of crashes (fatalities and injuries) at a given location or along a section of highway during a period of time. Highway worker safety in work zones refers to the safety of workers at the work zone interface with traffic and the impacts of the work zone design on worker safety. The number of worker fatalities and injuries at a given location or along a section of highway, during a period of time are commonly used measures for highway worker safety.

*Work zone*<sup>2</sup> is an area of a highway with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or

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<sup>1</sup> The MUTCD is approved by the FHWA and recognized as the national standard for traffic control on all public roads. It is incorporated by reference into the Code of Federal Regulations at [23 CFR part 655](#). It is available on the FHWA's Web site at <http://mutcd.fhwa.dot.gov/> and is available for inspection and copying at the FHWA Washington, DC Headquarters and all FHWA Division Offices as prescribed at [49 CFR part 7](#).

<sup>2</sup> MUTCD, Part 6, "Temporary Traffic Control," [Section 6C.02](#), "Temporary Traffic Control Zones."

work vehicles. It extends from the first warning sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last temporary traffic control (TTC) device.

*Work zone crash*<sup>3</sup> means a traffic crash in which the first harmful event occurs within the boundaries of a work zone or on an approach to or exit from a work zone, resulting from an activity, behavior, or control related to the movement of the traffic units through the work zone. This includes crashes occurring on approach to, exiting from or adjacent to work zones that are related to the work zone.

*Work zone impacts* refer to work zone-induced deviations from the normal range of transportation system safety and mobility. The extent of the work zone impacts may vary based on factors such as, road classification, area type (urban, suburban, and rural), traffic and travel characteristics, type of work being performed, time of day/night, and complexity of the project. These impacts may extend beyond the physical location of the work zone itself, and may occur on the roadway on which the work is being performed, as well as other highway corridors, other modes of transportation, and/or the regional transportation network.

### **Sec. 630.1006 Work zone safety and mobility policy.**

Each State shall implement a policy for the systematic consideration and management of work zone impacts on all Federal-aid highway projects. This policy shall address work zone impacts throughout the various stages of the project development and implementation process. This policy may take the form of processes, procedures, and/or guidance, and may vary based on the characteristics and expected work zone impacts of individual projects or classes of projects. The States should institute this policy using a multi-disciplinary team and in partnership with the FHWA. The States are encouraged to implement this policy for non-Federal-aid projects as well.

### **Sec. 630.1008 State-level processes and procedures.**

(a) This section consists of State-level processes and procedures for States to implement and sustain their respective work zone safety and mobility policies. State-level processes and procedures, data and information resources, training, and periodic evaluation enable a systematic approach for addressing and managing the safety and mobility impacts of work zones.

(b) Work zone assessment and management procedures. States should develop and implement systematic procedures to assess work zone impacts in project development, and to manage safety and mobility during project implementation. The scope of these procedures shall be based on the project characteristics.

(c) Work zone data. States shall use field observations, available work zone crash data, and operational information to manage work zone impacts for specific projects during implementation. States shall continually pursue improvement of work zone safety and mobility by analyzing work zone crash and operational data from multiple projects to improve State processes and procedures. States should maintain elements of the data and information resources that are necessary to support these activities.

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<sup>3</sup> "Model Minimum Uniform Crash Criteria Guideline" (MMUCC), 2d Ed. (Electronic), 2003, produced by National Center for Statistics and Analysis, National Highway Traffic Safety Administration (NHTSA). Telephone 1-(800)-934-8517. Available at the URL: <http://www-nrd.nhtsa.dot.gov/>. The NHTSA, the FHWA, the Federal Motor Carrier Safety Administration (FMCSA), and the Governors Highway Safety Association (GHSA) sponsored the development of the MMUCC Guideline which recommends voluntary implementation of the 111 MMUCC data elements and serves as a reporting threshold that includes all persons (injured and uninjured) in crashes statewide involving death, personal injury, or property damage of \$1,000 or more. The Guideline is a tool to strengthen existing State crash data systems.

(d) Training. States shall require that personnel involved in the development, design, implementation, operation, inspection, and enforcement of work zone related transportation management and traffic control be trained, appropriate to the job decisions each individual is required to make. States shall require periodic training updates that reflect changing industry practices and State processes and procedures.

(e) Process review. In order to assess the effectiveness of work zone safety and mobility procedures, the States shall perform a process review at least every two years. This review may include the evaluation of work zone data at the State level, and/or review of randomly selected projects throughout their jurisdictions. Appropriate personnel who represent the project development stages and the different offices within the State, and the FHWA should participate in this review. Other non-State stakeholders may also be included in this review, as appropriate. The results of the review are intended to lead to improvements in work zone processes and procedures, data and information resources, and training programs so as to enhance efforts to address safety and mobility on current and future projects.

### **Sec. 630.1010 Significant projects.**

(a) A significant project is one that, alone or in combination with other concurrent projects nearby is anticipated to cause sustained work zone impacts (as defined in [Sec. 630.1004](#)) that are greater than what is considered tolerable based on State policy and/or engineering judgment.

(b) The applicability of the provisions in [Sec. 630.1012\(b\)\(2\)](#) and [Sec. 630.1012\(b\)\(3\)](#) is dependent upon whether a project is determined to be significant. The State shall identify upcoming projects that are expected to be significant. This identification of significant projects should be done as early as possible in the project delivery and development process, and in cooperation with the FHWA. The State's work zone policy provisions, the project's characteristics, and the magnitude and extent of the anticipated work zone impacts should be considered when determining if a project is significant or not.

(c) All Interstate system projects within the boundaries of a designated Transportation Management Area (TMA) that occupy a location for more than three days with either intermittent or continuous lane closures shall be considered as significant projects.

(d) For an Interstate system project or categories of Interstate system projects that are classified as significant through the application of the provisions in [Sec. 630.1010\(c\)](#), but in the judgment of the State they do not cause sustained work zone impacts, the State may request from the FHWA, an exception to [Sec. 630.1012\(b\)\(2\)](#) and [Sec. 630.1012\(b\)\(3\)](#). Exceptions to these provisions may be granted by the FHWA based on the State's ability to show that the specific Interstate system project or categories of Interstate system projects do not have sustained work zone impacts.

### **Sec. 630.1012 Project-level procedures.**

(a) This section provides guidance and establishes procedures for States to manage the work zone impacts of individual projects.

(b) Transportation Management Plan (TMP). A TMP consists of strategies to manage the work zone impacts of a project. Its scope, content, and degree of detail may vary based upon the State's work zone policy, and the State's understanding of the expected work zone impacts of the project. For

significant projects (as defined in [Sec. 630.1010](#)), the State shall develop a TMP that consists of a Temporary Traffic Control (TTC) plan and addresses both Transportation Operations (TO) and Public Information (PI) components. For individual projects or classes of projects that the State determines to have less than significant work zone impacts, the TMP may consist only of a TTC plan. States are encouraged to consider TO and PI issues for all projects.

(1) A TTC plan describes TTC measures to be used for facilitating road users through a work zone or an incident area. The TTC plan plays a vital role in providing continuity of reasonably safe and efficient road user flow and highway worker safety when a work zone, incident, or other event temporarily disrupts normal road user flow. The TTC plan shall be consistent with the provisions under Part 6 of the MUTCD and with the work zone hardware recommendations in Chapter 9 of the American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide. Chapter 9 of the AASHTO Roadside Design Guide: “Traffic Barriers, Traffic Control Devices, and Other Safety Features for Work Zones” 2002, is incorporated by reference in accordance with [5 U.S.C. 552\(a\)](#) and [1 CFR part 51](#) and is on file at the National Archives and Record Administration (NARA). For information on the availability of this material at NARA call (202) 741-6030, or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html). The entire document is available for purchase from the American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, NW., Suite 249, Washington, DC 20001 or at the URL: <http://www.aashto.org/bookstore>. It is available for inspection from the FHWA Washington Headquarters and all Division Offices as listed in [49 CFR Part 7](#). In developing and implementing the TTC plan, pre-existing roadside safety hardware shall be maintained at an equivalent or better level than existed prior to project implementation. The scope of the TTC plan is determined by the project characteristics, and the traffic safety and control requirements identified by the State for that project. The TTC plan shall either be a reference to specific TTC elements in the MUTCD, approved standard TTC plans, State transportation department TTC manual, or be designed specifically for the project.

(2) The TO component of the TMP shall include the identification of strategies that will be used to mitigate impacts of the work zone on the operation and management of the transportation system within the work zone impact area. Typical TO strategies may include, but are not limited to, demand management, corridor/network management, safety management and enforcement, and work zone traffic management. The scope of the TO component should be determined by the project characteristics, and the transportation operations and safety strategies identified by the State.

(3) The PI component of the TMP shall include communications strategies that seek to inform affected road users, the general public, area residences and businesses, and appropriate public entities about the project, the expected work zone impacts, and the changing conditions on the project. This may include traveler information strategies. The scope of the PI component should be determined by the project characteristics and the public information and outreach strategies identified by the State. Public information should be provided through methods best suited for the project, and may include, but not be limited to, information on the project characteristics, expected impacts, closure details, and commuter alternatives.

(4) States should develop and implement the TMP in sustained consultation with stakeholders (e.g., other transportation agencies, railroad agencies/operators, transit providers, freight movers, utility suppliers, police, fire, emergency medical services, schools, business communities, and regional transportation management centers).

(c) The Plans, Specifications, and Estimates (PS&Es) shall include either a TMP or provisions for contractors to develop a TMP at the most appropriate project phase as applicable to the State's chosen contracting methodology for the project. A contractor developed TMP shall be subject to the approval of the State, and shall not be implemented before it is approved by the State.

(d) The PS&Es shall include appropriate pay item provisions for implementing the TMP, either

through method or performance based specifications.

(1) For method-based specifications individual pay items, lump sum payment, or a combination thereof may be used.

(2) For performance based specifications, applicable performance criteria and standards may be used (e.g., safety performance criteria such as number of crashes within the work zone; mobility performance criteria such as travel time through the work zone, delay, queue length, traffic volume; incident response and clearance criteria; work duration criteria).

(e) Responsible persons. The State and the contractor shall each designate a trained person, as specified in [Sec. 630.1008\(d\)](#), at the project level who has the primary responsibility and sufficient authority for implementing the TMP and other safety and mobility aspects of the project.

**Sec. 630.1014 Implementation.**

Each State shall work in partnership with the FHWA in the implementation of its policies and procedures to improve work zone safety and mobility. At a minimum, this shall involve an FHWA review of conformance of the State's policies and procedures with this regulation and reassessment of the State's implementation of its procedures at appropriate intervals. Each State is encouraged to address implementation of this regulation in its stewardship agreement with the FHWA.

**Sec. 630.1016 Compliance date.**

States shall comply with all the provisions of this rule no later than October 12, 2007. For projects that are in the later stages of development at or about the compliance date, and if it is determined that the delivery of those projects would be significantly impacted as a result of this rule's provisions, States may request variances for those projects from the FHWA, on a project-by-project basis.