COLORADO
Department of Transportation
Office of Policy and Government Relations
2829 W. Howard Place. Suite 562
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RELEASE MEMORANDUM

TO: All CDOT Employees

FROM: Shoshana Lew, Executive Director

RE: Updated Procedural Directive 1502.1 "Traffic Control for Planned and Unplanned Work"

DATE: April 8, 2019

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1. Name of Updated Procedural Directive: "Traffic Control for Planned and Unplanned Work"

2. Rationale for Updated Directive: Updated PD 1502.1 consolidates two existing PDs on work zone safety (PD 1502.1 "Work Zone Safety and Mobility" last updated in 2015 and PD 1505.1 "Traffic Safety in Highway and Street Work Zones" last updated in 2002) and replaces Chief Engineer Memos dated July 2012 (by Tim Harris), and December 2017 (by Josh Laipply).

The PD clarifies CDOT's operational requirements for the use of traffic control equipment and necessary safety procedures when working in the roadway. The key change in procedures is CDOT's decision to refer to the MUTCD requirements as a floor, not a ceiling, and the guidance in the table in Attachment A to the PD which explains requirements based on work duration types (this includes MUTCD requirements and additional CDOT requirements). Attachment B to the PD illustrates the decision-making tree that employees should consider when deciding whether to respond to an emergency situation on a work site.

3. Individuals/Entities/Projects Impacted by Procedural Directive: All employees who may perform work in the roadway.

4. PD 1502.1 will be implemented by: Division of Highway Maintenance

COLORADO DEPARTMENT OF TRANSPORTATION	☐ POLICY DIRECTIVE ■ PROCEDURAL DIRECTIVE	
Subject **Traffic Control for Planned and Unplanned Work**		**Number** **1502.1**
Effective 04.08.19	**Supersedes** 1505.1: 9.01.02 1502.1: 8.28.15	**Originating Office** **Division of Highway Maintenance**

I. PURPOSE

This Procedural Directive establishes procedures for the management of temporary traffic control zones, the safe and efficient movement of both motorized and non-motorized traffic through or around temporary traffic control work zones, and the protection of workers and equipment located within those work zones in conformance with 23 C.F.R. § 630.1006. The procedures may vary based on the characteristics and expected work zone impacts of individual projects or classes of projects. The Department also sought to set forth guidance regarding unplanned emergency work, including which employees should respond to the immediate need and what processes should be followed to address the need. This Directive emphasizes the Department's commitment to a comprehensive, unified maintenance and engineering approach to safety in all types of temporary traffic control zones.

II. AUTHORITY

Executive Director pursuant to § 43-1-105, C.R.S.

23 USC § 109 (b)(c)(n)(o) and (p)

23 C.F.R. 630.1006

Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition and the Colorado Supplemental thereto and Section 42-4-104, of Colorado Revised Statutes, 23 USC, 109(d), 315 and 402(a), 23 CFR 1.48(b).

CDOT's Region Lane Closure Strategies

CDOT Flagger Training Manual

Traffic Controls for Highway Construction, Standard Plan No. S-630-1

Work Zone Safety and Mobility Procedures (CDOT) (Revised March 2018)

Procedural Directive 1502.2 "Temporary Reduction in Speed Limits"

Form 568 "CDOT Temporary Speed Limit Reduction"

PD 1502.1 Reference Table (attached) (based on the MUTCD)

CDOT Procedural Directive 51.1 "Requirements for the Retention of Documents"

CDOT Record File Plans: Traffic Engineering and Maintenance

III. APPLICABILITY

This Procedural Directive shall apply to all CDOT employees. It shall also apply to contractors, consultants, and anyone else working within a CDOT approved or permitted temporary traffic control work zone.

IV. DEFINITIONS

"Emergency Roadway Situation" is defined as a serious, unexpected, and potentially dangerous situation discovered by one or more employees that poses an immediate threat to the employee(s) and/or the traveling public. Although CDOT has action plans that detail mitigation of many situations, CDOT's policies, procedures, training or resources may not address every possible situation or specific circumstance that may occur. Examples: Vehicle crash, vehicle fire, stalled vehicle, wildfire, flash flood, civilian in distress (medical), sinkhole, hazardous material event.

"Prepared Employee" is defined as a CDOT employee who has successfully completed formal training or education on traffic control practices, personal protective equipment use, work zone safety processes, CDOT roadway construction practices, incident command (NIMS) and/or emergency operations. In addition to the aforementioned training, to be considered a prepared employee, the proper traffic control equipment, vehicle warning lights, tools and proper personal protective equipment must also be immediately available to the employee at the time of the emergency or unplanned work.

"Unplanned Work" is defined as a situation that is discovered by one or more employees that was not part of the planned work for the day that poses a significant risk to the traveling public without immediate CDOT intervention. CDOT has formal or prescribed training and resources to mitigate these situations. Examples include road debris, avalanche, animal carcass removal, small diameter rockfall.

"Unprepared Employee" is defined as a CDOT employee who has not received any formal training or education on traffic control practices, personal protective equipment use, work zone safety processes, CDOT roadway construction practices, incident command (NIMS) and emergency operations. An employee is also considered unprepared if they do not have immediate access to the proper traffic control equipment, vehicle warning lights, tools and proper personal protective equipment to mitigate the emergency or unplanned work with the least amount of risk to the employee.

"Work Zone" is defined as the area where maintenance, repair, engineering, survey or construction activities are occurring that include temporary traffic control. See 24-4-614(1), C.R.S. It extends from the first warning sign or flashing lights on a vehicle to the "End of Road

Work" sign or the last traffic control device. A work zone may be for short or long durations and may include stationary or moving activities. Work Zone may also be referred to as Temporary Traffic Control (See Part 6 of the MUTCD).
(Definition of "Work Zone" continued below)

CDOT adheres to the MUTCD but sees it as containing minimum requirements. The mobile work zone set forth in the MUTCD required clarification. In order to provide added safety, statewide consistency and clear direction, CDOT has revised the definitions of work duration from the definitions in the MUTCD, and for CDOT work will be defined as follows:

- "Long-Term Stationary Work" means planned work activities that occupy a location within the traveled way or within CDOT's right-of-way for more than three days.
- "Intermediate-term Stationary Work" means planned work activities that occupy a location within the traveled way or within CDOT's right-of-way for more than a single work shift of no more than twelve hours, but for no more than three days.
- "Short-Term Stationary Work" means planned work activities that occupy a location within the traveled way or within CDOT's right-of-way for a single work shift of no more than twelve hours. Most maintenance and utility operations are short-term stationary work.
- "Short Duration Planned Work" means planned work activities that occupy a location within the traveled way or within CDOT's right-of-way for no more than 15 minutes and may include work activities that move intermittently.
- "Mobile work" means planned work activities in which workers and equipment move along the traveled way or within CDOT's right-of-way continuously without stopping, usually at slow speeds.
- "Unplanned Work and Emergency Roadway Situations" means a serious, unexpected, and potentially dangerous situation discovered by one or more employees that poses an immediate threat to the employee(s) and/or the traveling public. See pages 7 and 8 for procedures on how to handle these situations.

Work Duration	MUTCD Definition	This PD Definition
Long-Term Stationary	More than three days	More than three days
Intermediate-Term Stationary	One daylight period up to three days, or nighttime work lasting more than one hour	More than one work shift (of twelve hours) but no more than three days
Short-Term Stationary	More than one hour within a single daylight period	A single work shift of no more than twelve hours
Short Duration Planned	Up to one hour	No more than 15 minutes or moves intermittently

Mobile	Moves intermittently or continuously	Moves continually
Unplanned and Emergency	Not defined	A serious, unexpected, and potentially dangerous situation that poses an immediate threat to the employee(s) and/or the traveling public

V. PROCEDURES

A. Governing Documents and Requirements

1. All temporary traffic control devices shall conform to the applicable sections of the latest edition of the Manual on Uniform Traffic Control Devices ("MUTCD"), the Colorado Supplement thereto, the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction and the M&S Standards.

2. Work zones will be monitored for proper operation and to identify and analyze traffic crashes or conflicts. Nothing in this Procedural Directive shall be construed to relieve the responsibility of proper monitoring of traffic crashes and work zone safety issues by all parties responsible.

3. Methods of Handling Traffic (MHT) shall adhere to the most current version of the MUTCD, and the Colorado Supplement thereto, the CDOT Standard Specifications for Road and Bridge Construction, and CDOT M&S Standards, and shall adhere to the appropriate Region Lane Closure Strategy unless a variance is granted through the lane closure strategy process.

4. All work zones shall adhere to the provisions of section 630.13 of the Standard Specifications for Road and Bridge Construction regarding removal of signs when conditions no longer require traffic control devices.

5. Maintenance deviations from the examples given in the MUTCD or the CDOT M&S Standards shall be reviewed and approved by the LTC OPS I or higher. Deviations on engineering activities shall be reviewed and approved by CDOT Project Engineer before implementation.

6. If a work zone situation does not provide sufficient room to provide full compliance traffic control, the LTC Ops I or higher, or the Project Engineer shall develop a variance containing a justification to be submitted to the Region Traffic Engineer for review before being implemented. If work zone delineation cannot be provided due to the narrow road width, the LTC Ops I or higher or the Project Engineer or shall document other means to supplement the lack of work zone delineation in the submitted justification.

7. Documentation, including the Form 568, shall be retained according to the CDOT Record File Plans and CDOT's Procedural Directives 51.1 and 21.1. The CDOT Records

Management Program shall work with the Division of Highway Maintenance and the Mobility Operations Division to ensure proper retention of records.

8. As a standard practice, local law enforcement or the Colorado State Patrol shall be notified when a speed reduction is in place. When deemed necessary to increase safety and motorist compliance, their presence can be requested within the work zone area.

B. Planned Traffic Control Work

1. Work duration is a major factor in determining the number and types of devices used in temporary traffic control zones. For each category, see PD 1502.1 Reference Table attached detailing the appropriate Temporary Traffic Control devices. The considerations for each of the five categories of work duration are as follows:

a) Long-Term Stationary Work Zone (more than three days):

(i) Flagging is optional depending on the ability to maintain two-way traffic. A temporary signal or flagging is required for any single-lane operation. On interstates, flaggers may only assist in slowing traffic and may not stop traffic.

(ii) Includes ample time to install and realize benefits from the full range of traffic control procedures and devices that are available for use.

(iii) Generally, larger channelizing devices should be used, as they have more retroreflective material and offer better nighttime visibility. Larger devices are also less likely to be displaced or tipped over -- an important consideration during those periods when the work crew is not present.

(iv) As long-term operations extend into nighttime, retroreflective and/or illuminated devices are required as specified in the MUTCD. Temporary roadways and barrier should be provided, and inappropriate markings should be removed and replaced with temporary markings.

(v) Examples of Long-Term Stationary Work include large obstructions or major damage to pavement, paving, reconstruction, major bridge repair, chip seals, catastrophic avalanche response requiring road closure.

b) Intermediate-Term Stationary Work Zone (more than one work shift but no more than three days):

(i) The work crew may not be present at all times and may not be able to monitor the temporary traffic control zone. During times when the work crew is not present, an individual who is knowledgeable in the principles of temporary traffic control shall be assigned to check that all temporary traffic control devices are effective and consistent with the MHT. The frequency of these inspections shall be agreed to by

the LTC Ops I or higher, or CDOT Project Engineer, but shall generally be every three hours.

(ii) Flagging is optional depending on the ability to maintain two-way traffic. A temporary signal or flagging is required for any single-lane operation. On interstates, flaggers may only assist in slowing traffic and may not stop traffic.

(iii) During short-term stationary work, it may not be feasible or practical to use procedures or devices that would be desirable for long-term stationary temporary traffic control zones such as altered pavement markings, barriers, and temporary roadways.

(iv) Lighting and/or retroreflective devices should be chosen to accommodate varying seasonal, climatic, and visibility situations.

(v) When practical to do so, conflicting pavement markings should be removed to avoid confusion when channelizing devices are displaced. Temporary pavement markings can be installed, if needed. Channelization shall be made dominant by using a very close device spacing where it is not feasible to remove conflicting markings and install temporary markings. Full-compliance pavement markings are not required until work is completed.

(vi) Examples of Intermediate-Term Stationary Work include minor bridge repair or culvert repair.

b) Short-Term Stationary Work Zone (a single work shift of no more than twelve hours):

(i) The work crew is present to maintain and monitor the temporary traffic control zone.

(ii) The use of a flagger is optional depending on the ability to maintain two-way traffic. A temporary signal or flagging is required for any single-lane operation. On interstates, flaggers may only assist in slowing traffic and may not stop traffic.

(iii) Lighting and/or retroreflective devices should be chosen to accommodate varying seasonal, climatic, and visibility situations.

(iv) During short-term stationary work, it may not be feasible or practical to use procedures or devices that would be desirable for long-term stationary temporary traffic control zones such as altered pavement markings, barriers, and temporary roadways.

(v) Examples of Short-Term Stationary Work include pothole repair patching with hot mix, repair/replacement of Class I or II signs and delineators.

c) Short Duration Planned Work Zone (no more than 15 minutes):

(i) Traffic control measures that are more closely targeted to the actual work area may be warranted for short-duration work. Standard-intensity amber lights alone are not sufficient traffic control for this situation. At a minimum, a high-intensity light bar or strobe package shall be used on the vehicle. Also, a minimum of two warning signs are required, using a general sign such as Road Work (W20-1) or Shoulder Work (W21-5) in combination with a job specific sign such as Workers (W21-1, 1a). Flagging is required when working in a travel lane unless otherwise approved by the LTC Ops I or higher, Project Engineer, or Region Traffic Engineer. As stated above, CDOT considers MUTCD 6G.02 to be the minimum requirement, and in the interest of safety to the traveling public and work zone personnel.

(ii) Examples of Short Duration Work include minor pothole repair patching with cold mix, pavement sampling, repair or replacement of single post signs, clean-up of debris outside of travel lane, changing a LED traffic signal.

(iii) The use of a flagger is optional depending on the ability to maintain two-way traffic. Flagging will be required for any single-lane operation. On interstates, flaggers may only assist in slowing traffic and may not stop traffic.

d) Mobile Work Zone (moving continuously):

(i) Work is continuously moving and workers typically remain inside the vehicle while in the traveled way and clear zone.

(ii) Items marked as optional in Cases 34 through 39 of the S Standards are required for all CDOT projects unless approval is obtained by the LTC Ops I or higher or the Region Traffic Engineer. Shadow vehicles shall not be used in a live lane of traffic; in this case, a mobile attenuator truck shall be used. A mobile attenuator truck (a/k/a truck mounted attenuator or TMA) must be rated for the posted speed if used in the traveled way. A trailer mounted attenuator shall not be used in a mobile operation nor in a live lane of traffic unless approval is obtained by the LTC Ops I or higher or the Region Traffic Engineer. On interstates, mobile attenuators are required for mobile operations, work in lanes and shoulder work within fifteen feet of the traveled lane.

(iii) Examples of Mobile Work include pavement sweeping, pavement marking, mowing, roadside clean-up, chemical machine spraying of vegetation areas.

e) For Unplanned Work and Emergency Roadside Situations: See below at pp. 7-8.

C. Devices and Equipment

1. The following devices are the minimum measures for each planned traffic control situation. Additional safety devices, if available and applicable, should be used as a

supplement to these devices. Note that work within the median may require traffic control for both directions of traffic. Work in an intersection or interchange may also require additional traffic control. See Standard S-630-1 for signing and equipment requirements as Typical Applications are unique.

2. Based upon equipment availability, the Shadow Vehicle and Signage listed in Typical Applications 34-39 can be combined to facilitate the work.

3. The Application Vehicle is often referred to as an employee's work vehicle in the field, these terms are interchangeable. When an Application Vehicle is not accompanied by a Mobile Attenuator, the Application Vehicle shall be placed as far from edge-of-roadway as possible.

4. All light fleet vehicles being used for traffic control shall display high-intensity rotating, flashing, oscillating or strobe lights at all times during the work duration.

5. Based upon equipment availability, Signing, Shadow, Cone Pickup, Cone Placement, and Application Vehicles should include an attenuator on the vehicle.

6. Local traffic signals and non-CDOT signage cannot be used as a method of controlling traffic.

7. Use of temporary traffic signals shall be reviewed and approved by the Region Traffic Engineer. While typically addressed in the design phase, if, during construction, a temporary traffic signal is proposed, it must be approved by the Region Traffic Engineer in case there are possible impacts to safety and operations.

D. Full Road Closure

1. A full road closure is a divided highway or interstate closed in one or both directions, or an undivided highway closed in both directions.

2. The LTC Ops I or higher or CDOT Project Engineer shall submit a request to the Region Traffic Engineer for their approval prior to any full closure.

3. The request shall include at a minimum: reason for the need to close the entire roadway, location and duration of planned closure, detour route and supporting MHT around closure, impacts to local communities identified and discussed with impacted communities.

4. Final approval is contingent upon preparation of a complete road closure package with the identified elements addressed in the package.

E. Unplanned Work & Emergency Roadway Situations

1. The following procedures include unplanned and emergency roadway situations wherein work must be performed immediately for the safety of the travelling public.

2. Unplanned and Emergency situations may pose severe and unpredictable hazards to employees. In this case, the ability to install proper traffic control may be greatly reduced, and any CDOT devices on hand may be used for the initial response as long as they do not themselves create unnecessary additional hazards. If the situation is prolonged, standard procedures and devices for planned work-duration events and road closures shall be established as soon as practical.

3. This Directive does not apply to the actions of a CDOT employee in a personal vehicle who is not on CDOT time, when acting in their private capacity. There is no expectation that employees take any action when off-duty or traveling in a private capacity.

4. Examples of Unplanned Work include debris in the travel lane, small diameter rock fall, avalanche, and animal carcass removal.

5. Examples of Emergency Work include vehicle crash, vehicle fire, stalled vehicle, wildfire, flash flood, civilian in distress (medical), sinkhole, and hazardous materials events.

F. Employee Work Procedures for Unplanned Work & Emergency Roadway Situations

1. Directions for all CDOT Employees

a) There is no expectation that employees shall take action or place themselves in an unsafe environment to mitigate any unplanned or emergency situations they discover. Unprepared employees shall not attempt to personally mitigate unplanned or emergency situations.

b) Employees shall perform a pre-job hazard assessment to determine if they are prepared or unprepared to mitigate the Emergency Roadway Situation or Unplanned Work (see Attachment B). When determining preparedness levels, all employees shall prioritize their risk of injury or death in this order: 1) my safety; 2) the safety of my work peers; and 3) the safety of the traveling public/civilians.

c) All employees (Prepared and Unprepared) shall attempt to communicate the location and any known details of the situation by contacting local emergency services (911) or CDOT dispatch.

2. Unprepared CDOT Employees Shall:

a) Use the resources available to them to provide basic traffic notification and control but shall in no way put themselves in a position that increases the likelihood of personal or civilian injury or inflating the severity of the incident.

b) While in a CDOT vehicle equipped with a high-intensity light bar or strobe package (not including the vehicle's standard hazard lights), move to a safe location and provide

warning notification to traffic until the necessary resources arrive to mitigate the situation.

c) Position their vehicle in such a way to provide both high visibility of the vehicle and adequate notification of the situation to oncoming traffic.

d)Remain in the vehicle if possible until adequate resources arrive unless doing so poses an imminent life threat.

e) Only exit the vehicle if they have a CDOT-approved, ANSI 107 Type III vest and headwear.

3. Prepared CDOT Employees Shall:

a) Determine the method of response and the amount of temporary traffic control necessary to isolate the work area from oncoming traffic.

b) Not override traffic signals; by law, only law enforcement is authorized to direct traffic at active traffic signals. Flaggers shall not be used when a signal is active.

c) Vary the response depending on the preparedness level of the employee, the traffic volume and the extent and urgency of the incident.

d) Assess the current traffic volume, density and speed when determining if they can provide adequate notification to oncoming traffic of the situation as well as positive protection while working in the roadway. Such assessment includes:

(i) Having adequate lighting, line-of-sight visibility, traffic control and notification methods before blocking a lane of traffic.

(ii) Temporarily blocking the road with a CDOT vehicle equipped with oscillating/flashing lights if this is the best way to provide protection to employees and the traveling public.

(iii) Blocking the road on the other side of the incident location through established communication protocols.

(iv) Taking into account roadway and weather conditions.

e) When possible, use a spotter posted in a safe place to provide early warning of possible traffic encroachment into the work zone.

f) Make reasonable efforts to mitigate the hazard with the least amount of impact to normal traffic patterns without increased risk of injury to themselves.

VI. IMPLEMENTATION PLAN

This Procedural Directive shall apply any project that is scoped after the effective date of the Directive.

The Procedural Directive shall be implemented by the Division of Highway Maintenance.

The Office of Policy and Government Relations shall post this Procedural Directive on CDOT's intranet as well as on public announcements.

VII. REVIEW DATE

This Procedural Directive shall be reviewed on or before March 2023.

Shoshana M. Lew
Executive Director

4/18/19
Date of Approval

Attachment A
PD 1502.1 Reference Table

The procedures may vary based on the characteristics and expected work zone impacts of individual work/projects or classes of work/projects. Speed reductions should be requested when appropriate; please see PD 1502.2. If necessary, consult with the Region Traffic Engineer.

All light fleet vehicles shall be equipped with a high-intensity light bar or a strobe light package if being used for traffic control. Signing, shadow vehicles, traffic cone vehicles and application vehicles should include an attenuator when available.

Work Duration:	Examples of Planned Work:	Work Location: more than 30 feet from travel lane	Work Location: between 10 feet and 30 feet from travel lane	Work Location: less than 10 feet from the travel lane	Work Location: inside travel lane
Long-term Stationary Planned Work (more than three days)	• large obstructions or major damage to pavement • paving • reconstruction • major bridge repair • chip seals • catastrophic avalanche response requiring road closure	***Advanced Warning*** *(MUTCD TA-1)* • flagging, as needed • two warning signs, minimum • high-intensity light bar or strobe package • retroreflective/ illuminated devices at night	***Shoulder Closure*** *(S-630-1 Case Nos. 11, 16, 26-27)* • flagging, as needed • larger channelizing devices • retroreflective/ illuminated devices at night • temporary roadways and barrier, as needed • remove and replace markings, as needed	***Lane Closure*** *(S-630-1 Case Nos. 5-10, 12-14, 17-19, 22-24, 29-33)* • flagging (or temp signal), as needed • larger channelizing devices • retroreflective/ illuminated devices at night • temporary roadways and barrier, as needed • remove and replace markings, as needed • *note: follow CDOT's Region Lane Closure Strategy*	***Full Closure or Lane Closure*** *(S-630-1 Case Nos. 1-10,12-15, 17-25, 28-33)* • flagging (or temp signal), as needed • larger channelizing devices • retroreflective/ illuminated devices at night • temporary roadways and barrier, as needed • remove and replace markings, as needed • *note: follow CDOT's Region Lane Closure Strategy*
Intermediate-term Stationary Planned Work (more than a single work shift, but no	• minor bridge repair • culvert repair	***Advanced Warning*** *(MUTCD TA-1)* • flagging, as needed • two warning signs, minimum • high-intensity	***Shoulder Closure*** *(S-630-1 Case Nos. 11, 16, 26-27)* • flagging, as needed • inspect every 3 hours when work crew isn't present • retroreflective/	***Lane Closure*** *(S-630-1 Case Nos. 5-10, 12-14, 17-19, 22-24, 29-33)* • flagging (or temp signal), as needed • inspect every 3 hours when work crew isn't present	***Full Closure or Lane Closure*** *(S-630-1 Case Nos. 1-10,12-15, 17-25, 28-33)* • flagging (or temp signal), as needed • inspect every 3 hours when work crew isn't present

Work Duration:	Examples of Planned Work:	Work Location: more than 30 feet from travel lane	Work Location: between 10 feet and 30 feet from travel lane	Work Location: less than 10 feet from the travel lane	Work Location: inside travel lane
more than three days)		light bar or strobe package • retroreflective/ illuminated devices at night	illuminated devices at night • remove and replace markings, as needed, or use closely spaced devices	• retroreflective/ illuminated devices at night • remove and replace markings, as needed, or use closely spaced devices • *note: follow CDOT's Region Lane Closure Strategy*	• retroreflective/ illuminated devices at night • remove and replace markings, as needed, or use closely spaced devices • *note: follow CDOT's Region Lane Closure Strategy*
Short-term Stationary Planned Work (a single work shift of no more than 12 hours)	• major pothole repair patching with hot mix • repair/ replacement of Class I or II signs and delineators	***Advanced Warning*** *(MUTCD TA-1)* • flagging, as needed • two warning signs, minimum • high-intensity light bar or strobe package • retroreflective/ illuminated devices at night	***Shoulder Closure*** *(S-630-1 Case Nos. 11, 16, 26-27)* • flagging, as needed • retroreflective/ illuminated devices at night	***Lane Closure*** *(S-630-1 Case Nos. 5-10, 12-14, 17-19, 22-24, 29-33)* • flagging (or temp signal), as needed • retroreflective/ illuminated devices at night • *note: follow CDOT's Region Lane Closure Strategy*	***Full Closure or Lane Closure*** *(S-630-1 Case Nos. 1-10,12-15, 17-25, 28-33)* • flagging (or temp signal), as needed • retroreflective/ illuminated devices at night • *note: follow CDOT's Region Lane Closure Strategy*
Short Duration Planned Work (no more than 15 minutes)	• minor pothole repair patching with cold mix • pavement sampling • repair or replacement of single post	***Advanced Warning*** *(MUTCD TA-1)* • flagging, as needed • two warning signs, minimum • high-intensity light bar or	***Temporary Encroachment*** *(MUTCD TA-4)* • flagging, as needed • two warning signs, minimum • high-intensity light bar or strobe package • retroreflective/	***Temporary Encroachment*** *(MUTCD TA-4)* • flagging, as needed • two warning signs, minimum • high-intensity light bar or strobe package • retroreflective/	***Temporary Encroachment*** *(MUTCD TA-4)* • Flagging required unless otherwise approved by the LTC Ops I, Project Engineer, or Region Traffic Engineer. • two warning signs, minimum • high-intensity light bar or strobe package

Work Duration:	Examples of Planned Work:	Work Location: more than 30 feet from travel lane	Work Location: between 10 feet and 30 feet from travel lane	Work Location: less than 10 feet from the travel lane	Work Location: inside travel lane
	signs • clean-up of minor debris in travel lane • changing a LED traffic signal	strobe package • retroreflective/ illuminated devices at night	illuminated devices at night	illuminated devices at night	• retroreflective/ illuminated devices at night • *follow CDOT's Region Lane Closure Strategy*
Mobile Planned Work (moving continuously)	• pavement sweeping • pavement marking • mowing • roadside clean-up • chemical machine spraying of vegetation areas	***Advanced Warning*** *(MUTCD TA-1)* • two warning signs, minimum • high-intensity light bar or strobe package • retroreflective/ illuminated devices at night	***Mobile*** *(S-630-1 Case Nos. 34-39)* • S-standard items marked "optional" are required unless otherwise approved • no shadow vehicles in live lanes or within 15 feet of lane on interstates, use TMA • retroreflective/ illuminated devices at night	***Mobile*** *(S-630-1 Case Nos. 34-39)* • S-standard items marked "optional" are required unless otherwise approved • no shadow vehicles in live lanes or within 15 feet of lane on interstates, use TMA • retroreflective/ illuminated devices at night	***Mobile*** *(S-630-1 Case Nos. 34-39)* • S-standard items marked "optional" are required unless otherwise approved • no shadow vehicles in live lanes or within 15 feet of lane on interstates, use TMA • retroreflective/ illuminated devices at night • *note: follow CDOT's Region Lane Closure Strategy*

Attachment B

Unplanned Work & Emergency Roadway Situations

Pre-Job Hazard Assessment Workflow