

SECTION 01554

TRAFFIC CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Traffic Control Plan requirements, and materials and labor necessary for implementation.
- B. Traffic Control Maintainer, and Flagging.
- C. Work zone traffic control devices, advance warning arrow panels, and pilot cars.

1.2 RELATED SECTIONS

- A. Section 00555: Prosecution and Progress
- B. Section 00725: Scope of Work
- C. Section 00727: Control of Work
- D. Section 00820: Legal Relations and Responsibility to Public
- E. Section 01558: Temporary Pavement Markings
- F. Section 02891: Traffic Signs
- G. Section 02765: Pavement Marking Paint

1.3 REFERENCES

- A. AASHTO Roadside Design Guide, Current Edition
- B. ATSSA: American Traffic Safety Services Association
 - 1. Quality Standards for Work Zone Traffic Control Devices
- C. Manual on Uniform Traffic Control Devices (MUTCD), Current Edition
- D. NCHRP- Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Features

- E. UDOT Flagger Training Handbook
- F. UDOT Guidelines for Crash Cushions

1.4 BIDDING REQUIREMENTS

- A. The apparent low bidder:
 - 1. Submit three copies of the Traffic Control Plan to the Engineer no later than the fourth Wednesday following bid opening. Submit plans in 11 inches x 17 inches format prepared using CAD software. All plans must be signed and sealed by a professional engineer licensed in the State of Utah. When available, the Department will provide basemap CAD files in Microstation format to the Contractor on a CD-ROM at no cost.
 - 2. Attend a mandatory meeting at the time and location as directed by the Engineer:
 - a. Contractor's Traffic Control Designer
 - b. Contractor's Traffic Control Maintainer
 - c. Resident Engineer
 - d. Region Traffic Engineer or designated representative
 - 3. Ensure compliance with the plans and specifications. Modify plan if necessary to meet all applicable requirements.
 - 4. The Department will grant no additional contract time for preparing or modifying the Traffic Control Plan.
 - 5. Do not begin work until the Traffic Control Plan is implemented for that phase of work. Do not implement traffic control until written authorization is received from the Engineer.

1.5 CERTIFICATIONS

- A. After April 1, 2002, use devices and systems that meet NCHRP-350 Report crash test requirements as defined in the four categories by the Federal Highway Administration. Some exceptions will be acceptable as stated below.
 - 1. Category 1: Cones, tubular marker, delineators, and drums without lights must be certified by the manufacturer as meeting NCHRP-350 Report requirements.
 - 2. Category 2: Portable sign stands with signs, Type I, II and III barricades, vertical panels, Category 1 devices with light attachments and devices not expected to cause significant vehicle velocity change. These devices and systems must be certified by FHWA as meeting NCHRP-350 Report test requirements.

3. Category 3: Portable/Temporary pre-cast concrete barrier manufactured after October 1, 2002 must be certified as meeting NCHRP-350 Report test requirements.
 - a. Manufactured date to be stamped into top of each barrier section using a numeric format (ex: 10/2002) with 2 inch x 2 inch numerals, 1/4 inch deep. See BA series Standard Drawings.
 - b. Portable/Temporary pre-cast concrete barrier manufactured prior to October 1, 2002 and meeting NCHRP 230 may be used until they are no longer serviceable.
4. Category 3: Crash Cushions and Truck Mounted Attenuators must be certified by FHWA as meeting NCHRP-350 Report test requirements.
 - a. The appropriate GREAT CZ, manufactured by Energy Absorption Systems, may be used until they have completed their normal service life.
5. Category 4: Advanced Warning Arrow Panels and portable variable message signs do not have to meet NCHRP-350 Report test requirements.

1.6 TRAFFIC CONTROL PLAN REQUIREMENTS

- A. Design Traffic Control Plan resolving discrepancies between the various standards for traffic control in accordance with Section 00727 and the following:
 1. SN series Standard Drawings for post mounted signs and TC series Standard Drawings.
 2. Manual on Uniform Traffic Control Devices (MUTCD) Current Edition
- B. Follow the requirements and limitations identified in the Traffic Control Special Provision (if included), Section 00555, Section 00725, and Section 00820.
- C. Consider the safe and efficient movement of traffic when lane closures are proposed.
 1. Open lanes to traffic wherever and whenever practical.
 2. Minimize and restrict lane closures to the locations and times essential for prosecution of work.
- D. Provide for concrete barrier and attenuation to satisfy hazard mitigation according to TC series Standard Drawings.
- E. Provide for delineation and temporary pavement markings and/or removal as needed for traffic control or as required in accordance with this Section, article 1.6, Traffic Control Plan Requirements, paragraphs H and I.
- F. Provide concrete barrier or other positive protection for all hazards (ie: bridge parapets, barrier blunt ends, poles, large equipment to include but not limited to cranes, pile drivers etc.) when hazard is within AASHTO clear zone requirements for approach traffic.

- G. Use the following format and provide the following documentation:
1. Section I: Description of each phase
 - a. List phases, and corresponding bid items and elements of work to be accomplished in each phase.
 - b. Accounting for each contract bid item and element of work, reference the traffic control detail designed to provide for the safe and efficient movement of traffic and safety of workers.
 - c. All contract bid items and elements of work must be identified and included in the phasing.
 2. Section II: CAD generated drawings showing detailed Traffic Control Plan for each phase:
 - a. Adapt Standard Drawings and work zone traffic control examples contained in the MUTCD to reflect actual project conditions such as curves, grades, presence of ramps, intersections, and accesses.
 - b. Use basemap CAD files when supplied by the Department as a basis for the Traffic Control Plan drawings.
 - c. Use the same level of detail as in the MUTCD and UDOT TC series Standard Drawings.
 - d. Include the anticipated duration of the traffic control setup used in each phase.
 - e. Provide for the safe passage of pedestrians and bicyclists through the work zone in accordance with the Americans with Disabilities Act and the MUTCD.
 - f. Clearly indicate the following:
 - 1) Proposed regulatory speed reductions in accordance with this Section, article 3.6, Construction Zone Speed Limit Requirements.
 - 2) For all tapers: length of taper, device spacing, lane or shoulder closures, amount of lane shift in accordance with this Section, article 3.3, Traffic Control Signing and Devices, paragraph A.
 - 3) Length of buffer zone, in accordance with this Section, article.3.3, Traffic Control Signing and Devices, paragraph A.
 - 4) Device spacing used in tangents in accordance with this Section, article 3.3, Traffic Control Signing and Devices, paragraph B.
 - 5) Lengths of work zones, lane and shoulder widths and area available for vehicle recovery
 - 6) Proposed changes to be made to existing traffic signals including: timing changes, phase changes, etc.
 - 7) Sign locations for required and existing signs.
 - 8) Existing signs that are to be removed, covered, relocated or otherwise changed from the original configuration.

- 9) Worker parking, work vehicle and equipment access to and from work area, staging and material sites.
3. Section III: Emergency and Special Situations
 - a. Identify procedures for dealing with emergencies and special situations.
 - H. Provide temporary pavement markings on newly constructed asphalt pavement and refresh as needed until the final surfacing is placed in accordance with Section 01558 as directed by the Engineer.
 - I. Completely remove all existing traffic markings that conflict with the Traffic Control Plan, in accordance with Section 02765. Do not use paint or other material to cover markings.

1.7 TRAFFIC CONTROL MAINTAINER

- A. Certified by the Department or by the American Traffic Safety Services Association (ATSSA) as a Traffic Control Technician. Certifications are available through:

Associated General Contractors
1135 South West Temple
Salt Lake City, Utah
Telephone: 801-363-2753

American Traffic Safety Services Association (ATSSA),
15 Riverside Parkway Suite 100
Fredericksburg, Virginia 22406-1022
Telephone: (800) 272-8772
Internet: Refer to <http://www.udot.utah.gov/index.php/m=c/tid=719>.

- B. Authority:
 1. Obtains and uses all labor, equipment, and materials necessary to maintain traffic control.
 2. Changes traffic control operations per the traffic control plan.
- C. Responsibilities and Duties:
 1. Oversees all traffic control operations.
 2. Implements the Traffic Control Plan.
 3. Remains available 24 hours a day, seven days a week and can be on-site within 30 minutes of notification.
 4. Corrects deficiencies immediately upon verbal or written notification from the Engineer or representative.

5. Inspect and document inspections of traffic control on a form acceptable to the Engineer at least four times each day, at least one of which must be conducted during nighttime hours.
 - a. Before beginning of shift.
 - b. At mid-shift.
 - c. Half-hour after shift ends.
 - d. At the midpoint of the off-shift period.
6. Coordinates project traffic control with emergency services and local law enforcement agencies.
7. Inspect and document inspections of traffic control twice each day when no construction work is being done.
 - a. One during day light hours and one during night time hours
 - b. Conduct inspections a minimum of eight hours apart
8. Completes a daily record of traffic control activities using a form acceptable to the Engineer.
9. Submit to the Engineer inspection and activities forms each week on a day and time acceptable to the Engineer.
10. Provide a daily report of all planned traffic control activities to the Engineer by 7:00 a.m. each day. Provide the report each day during the contract.

1.8 MAINTENANCE OF WORK ZONE TRAFFIC CONTROL

- A. Implement and maintain traffic control per the Traffic Control Plan. Implement changes to traffic control required in order to meet UDOT Standard Specifications, Drawings and MUTCD at no additional cost to the Department. Coordinate changes to traffic control and the Traffic Control Plan with the Engineer prior to implementation.
- B. Meet all requirements of this Section, article 1.7, Traffic Control Maintainer when traffic control devices are required to be in place overnight or on weekends.
- C. Meet the acceptable classification as identified by *Quality Standards for Work Zone Traffic Control Devices* published by American Traffic Safety Services Association (ATSSA) for traffic control devices.
 1. Wash devices weekly unless conditions warrant more frequent cleaning.
- D. Maintain traffic control devices during and after all snow plowing operations at no additional cost to the Department. Clear snow away from all traffic control devices so that the devices function as intended.

1.9 WAGE RATES FOR TRAFFIC CONTROL PERSONNEL (FEDERAL AID JOBS ONLY)

- A. Payment of wages must be as stated below during the time the certified Traffic Control Maintainer, or others involved in setting up or maintaining traffic control devices working under the direction of the certified Traffic Control Maintainer, is on the project site and does any of the following work:
 - 1. Laborer I - for moving traffic control devices by hand; loading or unloading devices on to or off of the truck; and for all hours required to be at the project site except those hours spent in the truck driver classification.
 - 2. Truck Driver - for all hours spent driving on the project site in the performance of the duties required to maintain the traffic control. The rate of pay is determined by the size of vehicle being driven, Pickup Truck being the smallest.

1.10 PAYMENT PROCEDURES

- A. Partial Payments - Based on the percentage of the project completed, excluding the cost of traffic control.
- B. Price Adjustments:
 - 1. The Department reduces payment when traffic control is not in compliance with the Traffic Control Plan, or when the contractor fails to meet all requirements cited or referenced in this specification.
 - a. The amount per day by which the Contractor's compensation will be reduced is calculated using the daily charge for Calendar Day in the Schedule of Liquidated Damages in Table of Section 00555 or the Contract lump sum bid price for Traffic Control divided by the number of contract days, whichever is greater.
 - 2. A Stop Work order issued due to non-compliance with this specification is not considered to be an authorized suspension of contract time. Contract time will continue to accrue as defined Section 00555.
- C. Include in the bid item Traffic Control all materials, equipment, labor, flagging, pilot car, temporary pavement markings and/or removal and workmanship required for the design, implementation and maintenance of the Traffic Control Plan.

- D. Provide the Engineer in writing with a detailed analysis showing impacts to traffic control caused by extra work that necessitates modification to the Traffic Control Plan. Negotiate and agree to either a lump sum price for additional Traffic Control or agree to unit prices to be used for additional Traffic Control measures or devices required, prior to performing the extra work.

PART 2 PRODUCTS

2.1 PILOT CAR

- A. Equip with a reflectorized sign:
 - 1. Comply with Section 02891
 - 2. MUTCD sign G20-4
- B. Equip with a minimum two rotating lights or strobe lights.
 - 1. Minimum 4 inch diameter and minimum 6 feet mounting height
 - 2. Yellow color

2.2 FLAGGER EQUIPMENT AND CLOTHING

- A. Comply with to the Department's Flagger Training Handbook.
- B. Comply with TC series Standard Drawings.
- C. Clothing:
 - 1. Flagger vest and hard hat: Orange, red-orange, or fluorescent version of these colors:
 - a. Safety vest with a minimum of 775 square inches of background material. Night work requires a minimum of 201 square inches of reflective material (100 ½ square inches on the front and 100 ½ square inches on the back). Reflective material will be white and/or strong yellow-green.
 - b. Hard hat with 10 square inches of white or strong yellow-green reflective tape placed around the base of the hard hat and visible to traffic from all directions.

2.3 TRAFFIC CONTROL SIGNING AND DEVICES

- A. Signs:
 - 1. Comply with this Section, article 1.5, Certifications
 - 2. Comply with Section 02891
 - 3. Comply with TC series Standard Drawing

4. Comply with SN series Standard Drawing when using post mounted signs
- B. Channelizing Devices:
1. Comply with this Section, article 1.5, Certifications
 2. Comply with TC series Standard Drawing
 - a. Comply with Section 02891.
 - b. Use construction orange tubular markers and cone during daylight hours only.
- C. Precast Concrete Barrier:
1. Comply with this Section, article 1.5, Certifications
 2. Comply with TC series Standards Drawings
 3. Use an approved construction zone attenuator or permanent style end sections, as listed in UDOT Guidelines for Attenuators and End Section.
 - a. Use a construction zone attenuator when approach ends of temporary precast barrier are within AASHTO clear zone.
 - 1) Use AASHTO Roadside Design Guide to determine proper clear zone distance requirements
 - 2) Install crash cushions as per CC series Standard Drawings and manufacturer's recommendations.
 4. Do not use a truck-mounted attenuator (TMA) to protect temporary precast barrier end for more than 24 hours. Use properly rated TMA as directed in this Section, article 2.3, Traffic Control Signing and Devices, paragraph D.
- D. Use properly rated truck-mounted attenuator for the posted speed limit prior to construction.
1. NCHRP-350 Test Level 2 for speeds 45 mph or less
 2. NCHRP-350 Test Level 3 for speeds greater than 45 mph.

2.4 ADVANCE WARNING ARROW PANEL

- A. Advance Warning Device:
1. Meet all standards as specified in the MUTCD, Section 6F.53 Arrow Panels.
 2. Perform all functions as specified in TC series Standard Drawings and the MUTCD

PART 3 EXECUTION

3.1 MODIFICATION OF TRAFFIC CONTROL PLANS

- A. Each phase of construction must use an authorized Traffic Control Plan. If a construction phase is proposed that is not covered by the Traffic Control Plan, submit a plan to the Engineer for review.
 - 1. Submit plans to the Engineer 10 working days before the Traffic Control Plan is to be implemented.
 - 2. Do not begin work until the Traffic Control plan is authorized for use, and has been fully implemented.
 - 3. Implement changes required to meet UDOT Standard Specifications, Standard Drawings and MUTCD at no additional cost to the Department.
 - a. Comply with this Section, article 1.4, Bidding Requirements, paragraph A, line 1.

3.2 FLAGGING

- A. Flaggers must have a current flagging certificate and must present proof of certification upon request by the Department.
 - 1. Acceptable certifications
 - a. UDOT Contractor Certification (Utah Valley State College)

3.3 TRAFFIC CONTROL SIGNING AND DEVICES

- A. Use posted speed limit prior to construction to compute sign spacing, taper lengths, buffer zones and construction clear zone.
 - 1. Use plastic drums for lane closure taper devices for speeds 50 mph and greater.
 - 2. Do not use cones or tubular markers at night
- B. Use posted speed during construction to compute the tangent spacing for channelizing devices.
- C. Remove all traffic control from site of work when not required within 24 hours.
 - 1. Remove traffic control devices from the roadway a distance twice that of the Construction Clear Zone, TC series Standard Drawings, if they will be used within 24 hours of the daily work stoppage and are not required for immediate traffic control.
 - a. Obtain written permission from property owner prior to storing traffic control devices on private property.

2. Cover post mounted signs when directed by Engineer.
 - a. Cover signs completely with an opaque and durable covering.

3.4 ADVANCE WARNING ARROW PANEL

- A. May substitute Type C units for Type B units.
 1. Comply with TC series Standard Drawings
- B. Do not substitute Type B units for Type C units.
- C. Remove Advance Warning Arrow Panel from the site of work when not needed for the control of traffic within a four-hour period.

3.5 TRAFFIC SIGNALS

- A. Use uniformed police officer when construction activities are impacting an operating signalized intersection.
- B. Use of flaggers at traffic signals permitted when the signals have been turned to red flash mode.
 1. Each approach is to be controlled by a separate flagger(s).
 - a. Flaggers can control only two lanes of approach traffic
 - 1) Third lane control permitted when left or right turn bays present.
- C. The Department will make all changes to traffic signal operations.

3.6 CONSTRUCTION ZONE SPEED LIMIT REQUIREMENTS

- A. Obtain approval from the Engineer for regulatory speed reductions.
 1. See TC series Standard Drawings.
 2. Use speed reduction only when construction activities impact traffic.
 3. Restore regulatory speed limit at locations where construction activities are not impacting traffic.
 4. See SN series Standard Drawings for post mounted sign requirements.

END OF SECTION