

Section 48

Work Zone Safety

48.1 Scope

This section establishes work zone safety requirements for Bureau of Reclamation (BOR) projects where personnel are working along public roadways, bridges, and private roads open to the public.

This RSHS section applies to Reclamation contractors.

48.2 General Requirements

Reclamation projects must use a site-specific Temporary Traffic Control (TTC) plan for public roadways, bridges, and private roads open to the public, where work is performed on or within 15 feet from the edge of the roadway. The TTC plan must accommodate the needs of all impacted road users (motorists, bicyclists, pedestrians) when designed. When a reclamation project occurs off reclamation-managed roadways, BOR shall collaborate with the controlling entity (city, county, state, federal, sovereign nation) with jurisdictional roadway authority to develop the TTC. The details in the TTC plan depend on the type of roadway, traffic volume, road conditions, duration of operation, physical constraints, and the proximity of the work activity to road users.

48.3 Responsibilities

An internal traffic control plan to guide the flow of equipment and personnel (workers and public) is required where construction vehicles, equipment, and personnel on foot are operating within or adjacent to the work zone. All traffic control on Reclamation projects must conform to the *Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways*, 2009 Edition, December 2009 (including Revision 1 dated May 2012 and Revision 2 dated May 2012), (“MUTCD”) IBR approved for §§1926.200(g) and 1926.201(a).

48.3.1 Area, Facility, Powerplant Managers and Contractors

48.3.1.1 Shall provide work zone safety training to employees.

48.3.2 Regional Safety Managers / Area Office Safety Professionals

48.3.2.1 Shall conduct periodic reviews of local work zone traffic control elements as part of normally scheduled safety and occupational health program evaluations. Use Attachment A1, *Work Zone Traffic Control Inspection Form*, or a similar product for work zone traffic control inspections.

48.3.3 First-Line Supervisors

- 48.3.3.1** Shall ensure that training is provided to employees based on their area of responsibility in the TTC plan (e.g., flagger, spotter, dump person, equipment operator, construction inspector, safety office inspector, COR).
- 48.3.3.2** Shall collaborate with employees to design/select project-specific TTC plans. First-line supervisors or their trained designee must communicate any changes to the TTC plan during the project's duration.
- 48.3.3.3** Shall provide employees with high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107–2004 publication entitled “American National Standard for High-Visibility Apparel and Headwear” and shall be labeled as meeting the ANSI 107-2004 standard performance for Class 2 or 3 risk exposure.

48.3.4 Employees

- 48.3.4.1** Shall obtain work zone safety and job-specific training for their role in the TTC plan (e.g., flagger, spotter, dump person, equipment operator, construction inspector, safety office inspector, safety office inspector, COR).
 - Employees not trained in work zone safety must be accompanied by trained personnel when visiting the work zone.
- 48.3.4.2** Shall follow all work zone safety requirements and report any concerns regarding work zone safety and health to their supervisors.
- 48.3.4.3** Shall follow site-specific TTC requirements and complete Personal Protective Equipment (PPE) training for high-visibility safety apparel in work zones and flagger training as applicable.

48.3.5 Visitors/Dignitaries

- 48.3.5.1** Visitors/Dignitaries to a project/work zone must:
 - get approval from the area manager or COR before visiting.
 - receive project-specific hazard awareness training from trained personnel before entering the project/work zone.
 - be accompanied by trained personnel while visiting the project/work zone.
 - wear proper PPE while in the project/work zone.

48.4 Training Requirements

48.4.1 Initial

Employees working on or within 15 feet of the edge of any roadway shall complete a training program that covers the areas listed below:

- work zone traffic control principles,
- the four parts of a work zone,
- basic traffic control plans,
- PPE requirements (head protection, eye protection, American National Standards Institute (ANSI) class 2 or 3 garment, boots),
- selecting the best TTC plan for the task,
- work zone device placements and spacing (signs, cones, barricades),
- entering and exiting the work zone,
- techniques for reducing risk while working next to traffic in the work zone on foot or in equipment,
- understanding internal traffic control plans for equipment and personnel,
- work zone hazard identification,
- proper placement of traffic control devices,
- planning for emergency vehicles,
- communicating during the work and during an emergency,
- routine inspections of traffic control devices,
- driver tendencies in the work zone,
- how to minimize exposure times in the work zone,
- providing positive guidance to the motorist,
- providing adequate advance warning time to motorists,
- night work, lighting requirements, and PPE requirements,
- dealing with angry motorists, and
- the difference between a spotter, a dump person, and a flagger.

An American Traffic Safety Services Association (ATSSA) flagger course or an individual State's Department of Transportation Flagging Course will meet the initial training requirements of 48.4.1.

48.4.2 Advanced Traffic Control Training

Employees tasked with reviewing traffic control plans or traffic control device placement on construction projects where contractors are involved shall first complete an ATTSA flagger course or an equivalent State's Department of Transportation Flagging Course and then complete the ATTSA traffic control technician (TCT) or ATTSA traffic control supervisor (TCS) course or equivalent training that meets ATTSA TCT or TCS requirements, depending on your specific duty requirements.

48.4.3 Certification

Flaggers shall complete an American Traffic Safety Services Association flagger course or an individual State's Department of Transportation Flagging Course, where a certificate or flagger card is issued or an equivalent sponsored training that meets the requirements below and issues a certificate of completion:

- flagger qualifications,
- flagger attributes,
- flagger responsibilities,

- flagger hand signals,
- using a stop/slow paddle, and
- flagger station requirements and escape routes.

48.4.4 Refresher/Recertification

Flagger recertification frequency shall follow more stringent Federal or State requirements but, at a minimum, shall be required every four years.

48.4.5 Recordkeeping

Reclamation managers and supervisors are responsible for documenting all work zone-related safety training. All records created shall be managed per the Information Management Handbook referenced in Reclamation Manual Directive and Standard, Department of the Interior's, Information Management (RCD 05-01).

48.5 Pre-job Briefing and Planning Requirements

All responsible parties shall prepare and understand the project's TTC plan before occupying the site. The supervisor or lead person most knowledgeable in proper TTC practices shall approve any changes in the TTC plan.

48.6 Personal Protective Equipment (PPE)

All workers within the right-of-way who are exposed to traffic (vehicles using the roadway for purposes of travel) or to work vehicles and construction equipment within the TTC zone shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/International Safety Equipment Association 107–2004 publication, *American National Standard for High-Visibility Safety Apparel and Headwear*, or equivalent revisions, and labeled as meeting the ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Employees working during daylight hours shall be provided and wear ANSI Performance Class 2 garments. Employees working at night shall be provided and wear ANSI Performance Class 3 garments.

48.7 Temporary Traffic Control Devices

All TTC devices manufactured before December 31, 2010, shall meet the crashworthy performance criteria in the National Cooperative Highway Research Program Report 350, *Recommended Procedures for the Safety Performance Evaluation of Highway Features*. TTC devices manufactured after January 1, 2011, must follow the American Association of State Highway and Transportation Officials *Manual for Assessing Safety Hardware* standards. MUTCD crashworthiness provisions apply to all streets, highways, and private roads open to public travel. Crashworthiness and crash testing information on devices described in Part 6 of the MUTCD are found in the American Association of State Highway and Transportation Officials, *Roadside*

Design Guide. Traffic control devices are all signs, signals, markings, and other devices used to regulate, warn, or guide road users placed on, over, or adjacent to a street, highway, or private road open to public travel.

48.8 Communication Requirements

Flaggers, equipment operators, and ground personnel in the work zone shall establish a communication plan for normal operations, traffic control, and emergency stoppages as part of the overall TTC plan.

48.9 Definitions located in Appendix K and References in Appendix L

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RSHS 48: Work Zone Safety Appendix A



WORK ZONE TRAFFIC CONTROL INSPECTION FORM

Project No.		Date/time	/ /	a.m./p.m.
Location		City		State
Lane Width		No. of Lanes		Posted Speed Limit MPH
Weather/Lighting Conditions		Project Type		
Competent Person				
Work Duration <i>(Circle One)</i>	Long-Term Stationary		Intermediate-Term Stationary	
	Short-Term Stationary	Short-Duration	Mobile	

ADVANCE WARNING SIGNS

SIGN QUANTITY:		
Appropriate No. Of Signs	Yes	No <i>(If No, Explain)</i>
Missing Sign Series	Yes	No <i>(If Yes, Explain)</i>
Missing Specific Sign(s)	Yes	No <i>(If Yes, Explain)</i>

SIGN CONDITION	Good	Fair	Poor	LEGENDS	Good	Fair	Poor
Cleanliness				Appropriate Legends			
Legibility				Unneeded Signs Visible			
Reflectivity				Signs Posted, No Work			

SIGN PLACEMENT	Good	Fair	Poor	ARROW PANEL A, B, C, or D	Good	Fair	Poor
Height				Placement			
Visibility				Delineated/Shielded			
Spacing				Removed When Not In Use			

NON-STANDARD SIGNS			
Appropriate Legend		Shape	
Color		Size	

Overall Advance Warning: Excellent _____ Adequate _____ Inadequate _____

Comments:

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CHANNELIZING DEVICES

TYPE OF UPSTREAM TAPER <small>(Circle One)</small>			
Merging	Shifting	Shoulder	One-Lane, Two-Way

DOWNSTREAM TAPER <small>(Optional)</small>			
USED	Yes	No	Taper Length <i>Meters / Feet</i>

CHANNELIZING DEVICE CONDITION							
DEVICE	Good	Fair	Poor	DEVICE	Good	Fair	Poor
Barricades Type I, II, or III				Tubular Markers			
Drums				Vertical Panels			
Cones				Warning Lights			

CHANNELIZING DEVICE CONDITION <small>(Continued)</small>			
Appropriate Ballasting	Yes	No	<small>(Explain)</small>
Appropriate Battery Mount	Yes	No	<small>(Explain)</small>
Adequate Spacing	Yes	No	<small>(Explain)</small>
Adequate Taper Length	Yes	No	<small>(Explain)</small>
Appropriate No. of Devices	Yes	No	<small>(Explain)</small>
Non-Standard Device	<small>(Explain)</small>		

Overall Channelization: Excellent _____ Adequate _____ Inadequate _____
Comments

PAVEMENT MARKINGS

USE OF PAVEMENT MARKINGS		
Markings Used	Yes	No
Easily Understandable	Yes	No <small>(If No Explain)</small>

CONDITION	Good	Obscured	Faded	Damaged/Dislodged
Paint / Tape				
Raised Markers				

Overall Pavement Marking: Excellent _____ Adequate _____ Inadequate _____
Comments

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FLAGGING

FLAGGER USE					
Flagger(s) Used	Yes	No	No. of Flaggers		
Flagger Station Preceded By Advance Warning Signs	Yes	No	<small>(Explain)</small>		
Flaggers Are Clearly Visible To Approaching Traffic	Yes	No	<small>(Explain)</small>		
Approaching Traffic Has Sufficient Distance To Stop	Yes	No	<small>(Explain)</small>		
Flagger Stations Illuminated (Night Time)	Yes	No	N/A		
Signaling Device	Slow/Stop Paddles		Flags		
Communication Used Between Flaggers	Visual Contact		Two-Way Radio Contact		
Flagging Technique	Good		Fair	Poor	

FLAGGER ATTIRE		
High-Visibility Apparel	Yes	No
Hard Hats	Yes	No

Overall Flagging: Excellent _____ Adequate _____ Inadequate _____
 Comments

ROADSIDE SAFETY

Type of Barrier	Concrete	Timber Curb	Guide Rail	Other
Barrier Condition	Good	Fair	Poor <small>(Explain)</small>	
Flared End Treatment Needed	Yes	No	Impact Attenuator Needed	Yes No

BARRIER DELINEATION				
Lights	Good	Fair	Not Working	
Reflectors	Good	Fair	Poor	Too Small
Adequate Drop-Off Delineation	Yes	No	<small>(Explain)</small>	
Adequate Clear Zone	Yes	No	<small>(Explain)</small>	

Overall Roadside Safety: Excellent _____ Adequate _____ Inadequate _____
 Comments

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INTERNAL TRAFFIC CONTROL

INTERNAL TRAFFIC CONTROL PLAN REQUIREMENTS	YES	NO
Contact Information For The General Contractor And Subcontractors Available		
All Site Personnel Have Been Trained On The Specific Internal Traffic Control Plan (ITCP)		
Worker and Visitor Parking Areas Have Been Designated		
Independent Truck Drivers Have Been Oriented Prior to Entering The Work Space		
Areas Around Specific Pieces of Equipment and Operations Have Been Delineated		
Locations For Storing Materials And Servicing Equipment Have Been Designated		
Internal Signs And Traffic Control Devices Have Been Posted/Erected		
Speed Limit Within The Work Zone Has Been Posted		
Adequate Lighting Has Been Provided For Night Operations		
Channels Of Communication Regarding Changes To The ITCP Have Been Designated		
Communication Between Workers On Foot And Equipment Operators Has Been Established		
Communication Between Equipment Operators Has Been Established		

Overall Rating For The ITCP: Excellent _____ Adequate _____ Inadequate _____
Comments

MISCELLANEOUS TRAFFIC CONTROL

CONDITION	YES	NO	EXPLANATION
Unprotected Operations or Equipment In Roadway			<small>(If No, Explain)</small>
Temporary Traffic Signal Operation/Installation Effective			<small>(If No, Explain)</small>
Original Signs/Delineation In Good Condition			<small>(If No, Explain)</small>
Posted Speed Limit	MPH	Appropriate	Too Fast Too Slow
Access Control	Good	Fair	Poor
PEDESTRIAN SAFETY			
Adequate Travel Path	Yes	No	Adequate Protection From Hazards
			Yes No

Overall Misc. Traffic Control: Excellent _____ Adequate _____ Inadequate _____
Comments

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OVERALL RATING: Excellent _____ Adequate _____ Inadequate _____