



WORK AREA PROTECTION

Separate Workers, Road Users and the Public from Construction Hazards

POLICY STANDARD

Work that affects motorists, bicyclists, pedestrians, workers or adjacent property shall not begin until the approved temporary traffic-control plan and task-specific work-area controls are installed, inspected and understood. Controls shall be maintained whenever the hazard remains.

PHEIFER BROTHERS CONSTRUCTION CO., INC.

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IMPORTANT DISTINCTION

Cones and signs guide road users; they do not provide crashworthy physical protection. Where an intrusion could cause severe injury, evaluate closure, positive protection, barrier, shadow vehicle, buffer space or another higher-level control.

Primary Regulatory References

- 29 CFR 1926.200 - signs, signals, markings and barricades
- 29 CFR 1926.201 - flagger signaling and warning garments
- Current Wisconsin Manual on Uniform Traffic Control Devices (WMUTCD), Part 6
- Current WisDOT Work Zone Field Manual
- Project traffic-control plans, specifications and special provisions
- Applicable ADA requirements and company Live Traffic, PPE and Internal Traffic policies

1. Purpose, Scope, Definitions and Responsibilities

Purpose and Scope

- Prevent struck-by, runover, intrusion, fall, falling-object, collision and public-access incidents around bridge, highway, street, marine, yard and shop work.
- Applies to public roads, closed roads, shoulders, sidewalks, paths, approaches, staging areas, bridge decks, excavation edges and any area needing signs, channelization, barricades, barriers or controlled access.

Key Definitions

- Temporary traffic control (TTC) zone: roadway area where road-user conditions are changed by work or an incident.
- Activity area: buffer space and work space where construction activity occurs.
- Buffer space: unoccupied area separating road users from the work activity; it shall not be used for workers, equipment or material storage.
- Channelizing device: cone, drum, tubular marker, vertical panel, barricade or other approved device guiding road users.
- Positive protection: crashworthy device physically separating traffic from workers/hazards, such as temporary concrete barrier when properly designed/installed.
- Competent person/TTC lead: designated employee capable of recognizing hazards and authorized to correct or stop the work.

Management / Program Administrator

- Provide approved plans, compliant devices, qualified staff, training, inspections, PPE and resources for closures/positive protection.

Project Manager / Superintendent

- Coordinate owner/agency approvals, plan changes, staging, emergency access, subcontractors and higher-level controls.

Foreman / TTC Lead

- Verify setup, conduct and document inspections, brief the crew, correct deficiencies and suspend work for unsafe or unauthorized conditions.

Employees

- Stay within protected areas, follow access routes, wear assigned PPE, report damaged/moved devices and use stop-work authority.

2. Planning, Authorization and Plan Precedence

Plan Precedence

- For Wisconsin state-highway work, follow the project TTC plans, specifications and special provisions first, then the current WisDOT Work Zone Field Manual for layouts not otherwise addressed. Apply the current WMUTCD and controlling agency requirements.
- Do not field-modify tapers, signs, spacing, lane widths, barriers, signals or detours without authorized review. Resolve conflicts before work proceeds.

Work-Zone Planning

- Identify work type, duration, roadway class/speed, traffic volume, sight distance, geometry, intersections, ramps, rail crossings, pedestrians/bicyclists, schools, businesses, emergency routes, work vehicles, queue risk and night/weather conditions.
- Select closure, detour, lane shift, shoulder closure, flagging, signal, mobile operation or positive protection based on engineering/agency requirements and worker exposure.

Four TTC Areas

- Plan the advance-warning, transition, activity and termination areas. Provide required signs, tapers, buffer spaces, channelization and downstream recovery.
- Account for curves, hills, intersections and approaches so road users receive adequate warning and a clear path before reaching workers/hazards.

Pre-Task Coordination

- Review the approved layout, device sequence, installation/removal method, escape routes, equipment entry/exit, deliveries, spotters, flagger communication and emergency actions.
- Coordinate adjacent contractors, utilities, law enforcement, railroad, owner and public-information needs. Each employer remains responsible for hazards affecting its employees.

Change Management

- Reassess for phase changes, queue growth, crashes, complaints, weather, lighting, damaged devices, new pedestrian routes, altered access, conflicting work or ineffective control. Obtain authorization before material plan changes.

3. Temporary Traffic-Control Zones and Devices

Signs

- Use approved, legible signs of correct size, color, message, mounting and retroreflectivity. Position for visibility and decision time without creating a roadside, pedestrian or sight-distance hazard.
- Cover, remove or turn signs only by an approved method when the message does not apply. Do not use homemade, damaged, misleading or conflicting signs.

Channelizing Devices

- Use approved cones, drums, panels and barricades at plan spacing. Keep them upright, clean, visible, correctly oriented and ballasted with approved methods.
- Do not use rocks, concrete blocks, scrap steel or other hazardous ballast. Do not reduce device height/type because the operation is short.

Tapers and Buffers

- Install taper type and length, device spacing and longitudinal/lateral buffer according to the approved plan/WMUTCD. Keep buffer areas free of workers, equipment, vehicles and materials.
- Maintain enough lateral clearance for road users and equipment without inviting excessive speed or accidental work-space entry.

Arrow Boards / Message Signs / Signals

- Use mode, orientation, message and placement authorized by the plan. Arrow boards shall not direct traffic into opposing lanes or imply a lane closure where not allowed.
- Portable changeable message signs support, but do not replace, required signs/devices. Temporary signals require approved timing, conflict protection, visibility and maintenance.

Barricades and Barriers

- Barricades warn or close; barriers provide physical separation only when crashworthy, correctly installed, connected, anchored/terminated and provided required deflection clearance.
- Never substitute caution tape or cones for guardrails, hole covers, trench protection, railing or crashworthy barrier required by the hazard.

4. Installation, Removal and Inspection

Installation Sequence

- Install from the first advance-warning point toward the work space so workers remain behind progressively established protection. Remove generally in reverse order unless an approved safer method applies.
- Use appropriate vehicle warning lights, shadow/protection vehicle, spotter, lane closure and escape route. Face traffic when practical and minimize exposure outside protected areas.

Pre-Opening Inspection

- Before work begins, drive/walk the approach from each affected direction at road-user eye level where safe. Verify sign sequence/spacing, sight distance, taper, lane width, buffer, device condition, pedestrian route and absence of conflicting controls.
- Confirm equipment/material remains within the protected work space and access points do not invite wrong-way or unauthorized entry.

Routine Inspection

- A qualified/designed person inspects at installation, before each shift, periodically during the shift, after changes or impacts and at night when the setup remains in use. Increase frequency for high-speed, high-volume, severe weather or recurring intrusion.
- Inspect queues, speeds, driver behavior, flagger visibility, device displacement, lighting, business/access needs, barrier condition and adjacent work.

Correction

- Promptly replace, reposition, clean or remove unacceptable devices. Stop affected work or close the exposed area when a critical control is missing or cannot be promptly restored.
- Document significant deficiencies, corrective action, time and responsible person. Notify the owner/agency when required.

Unattended Work

- Maintain only controls that accurately represent the condition. Secure excavations, equipment and materials; remove or cover unnecessary signs/devices.
- Provide after-hours contact and inspection following storm, crash, vandalism or reported problem.

5. Workers, Equipment and Internal Traffic

Worker Positioning

- Keep employees inside the protected work space and out of tapers, buffers, live lanes, equipment swing paths and vehicle blind spots. Plan a safe retreat path that is not blocked by barrier, excavation or equipment.
- Face traffic when duties allow; do not rely on approaching drivers to see or avoid workers.

High-Visibility and PPE

- Wear properly fitting high-visibility apparel meeting the project, WMUTCD and PPE Policy. Use appropriate performance class for roadway speed/exposure and supplemental visibility for night work.
- Hard hats with buckled chin straps, protective footwear and task-specific eye, hearing, fall and respiratory PPE remain required.

Equipment Entry / Exit

- Design access so trucks and equipment can decelerate, turn, merge and cross without unexpected conflict. Use spotters or traffic control when backing, limited sight distance or crossing active travel paths creates risk.
- Keep gates/access closed or controlled. Remove mud/debris and prevent queued delivery vehicles from blocking public traffic or sight lines.

Internal Traffic Control

- Establish haul routes, one-way flow, parking, delivery/staging, pedestrian paths, speed limits and equipment exclusion zones. Separate workers on foot from mobile equipment.
- Use the Backing, Spotters and Internal Traffic Control Policy. TTC for public traffic does not control construction equipment inside the work area.

Work Vehicles

- Use required warning lights, signs, arrow/message devices and high-visibility markings. Park to provide protection only where the plan and vehicle/device rating support that function.
- Do not stand between a work vehicle and traffic/barrier, or remain downstream of an unprotected vehicle where intrusion could trap the employee.

6. Flagging and One-Lane Traffic Control

Qualified Flaggers

- Only trained, qualified and authorized flaggers may control public traffic. Training shall meet current Wisconsin/project requirements and cover signals, positioning, escape, communication, queues and emergencies.
- Flaggers wear required high-visibility apparel and remain alert; phones, headphones and unrelated duties are prohibited while flagging.

Position

- Stand on the shoulder or closed lane in advance of the work/queue with adequate sight distance and a clear escape route. Do not stand in the traffic path or in a location where equipment, barrier or excavation prevents escape.
- Be visible to approaching traffic but do not stand in shadow, glare, behind signs/vehicles or among the crew.

Devices and Signals

- Use a STOP/SLOW paddle as the primary hand-signaling device unless an approved plan allows another method. Use standardized flagger signals; never wave drivers through casually or invent gestures.
- Keep the paddle clean, correct size/height and retroreflective for night conditions. Red flags are limited to emergencies or allowed low-speed situations under the applicable manual.

Communication

- Flaggers at opposite ends maintain reliable visual, radio or approved communication and coordinate with pilot car/signal. Confirm the opposing traffic stream is stopped before release.
- Use clear identifiers and repeat-back for critical messages. Stop operations when communication fails.

Queues and Emergencies

- Monitor queue growth and sight distance; extend warning or modify control only through authorized procedures. Never allow stopped traffic to extend beyond warning without response.
- For an approaching nonresponsive vehicle, warn the crew using the agreed alarm and move to the escape route - do not step into the lane to force a stop.

7. Pedestrians, Bicyclists and Accessibility

Continuity and Accessibility

- Provide a continuous, detectable and accessible route for pedestrians, including persons with disabilities, or an approved accessible detour. Do not direct pedestrians into live traffic, equipment paths or unprotected hazards.
- Maintain usable width, firm/slip-resistant surface, slopes, detectable edging, turning space and curb-ramp transitions as required by the plan and accessibility standards.

Channelization

- Use continuous, stable devices with detectable lower edges where pedestrians are adjacent to work. Cones, caution tape and intermittent drums alone are not an accessible pedestrian barrier.
- Prevent snag, protrusion, trip and sharp-edge hazards. Keep ballast, sign supports, hoses, cords and debris outside the pedestrian path.

Protection

- Separate pedestrians/bicyclists from excavations, overhead work, falling objects, equipment, temporary wiring and traffic. Use railing, cover, canopy, barrier or closure appropriate to the hazard.
- Where pedestrians are routed near barrier, account for crash deflection and end treatments. Provide lighting without glare.

Crossings and Detours

- Place advance information at decision points so users can choose an alternate route. Maintain access to transit, businesses, residences and emergency facilities unless officially closed.
- Temporary signals and crossings shall provide required accessible features. Do not create an unstaffed conflict between pedestrian movement and construction vehicles.

Bicycles

- Provide a clear, stable route and appropriate merge/detour warning. Avoid abrupt edges, loose aggregate, longitudinal gaps and channelizing devices that force bicycles unexpectedly into traffic.

8. Positive Protection, Excavations and Falling Objects

Risk Evaluation

- Evaluate positive protection where workers are close to high-speed/high-volume traffic, have no escape route, work behind long-term lane closures, face deep excavation/drop-off or where intrusion consequences are severe.
- Consider exposure duration, lateral clearance, traffic mix, geometry, queue/crash history, work elevation and available closure/detour. Document the selected control when required.

Barrier Systems

- Install only approved crashworthy systems according to design, including connections, anchorage, transitions, end treatments, flare and deflection space.
- Do not store employees, equipment or material within the system's deflection/intrusion area. Inspect after any impact and remove the affected area from service until evaluated.

Excavations / Drop-Offs

- Provide approved channelization, barrier, railing, cover and lighting based on location and exposure. TTC devices do not replace Subpart P cave-in protection or fall protection.
- Secure covers against displacement and mark as required. Protect road users from pavement edges, temporary surfaces, steel plates and abrupt transitions.

Overhead / Falling Objects

- Establish exclusion zones and use toeboards, screens, debris nets, canopies, tool/material restraint or closure. Hard hats do not replace source controls.
- Do not route traffic or pedestrians beneath suspended loads or uncontrolled demolition, cutting, concrete placement or bridge-deck work.

Public and Unauthorized Entry

- Use fencing, locked gates, barricades and signs suited to duration and hazard. Secure equipment, ladders, cylinders, energy sources and excavations when unattended.
- Maintain separation from water, railroad, energized systems and hazardous materials; coordinate specialized policies.

9. Night Work, Weather and Special Conditions

Night Work

- Inspect after dark under actual operating conditions. Verify retroreflectivity, sign/device visibility, taper recognition, flagger conspicuity, pedestrian-route lighting and absence of glare/shadow/flicker.
- Illuminate tasks and decision points without blinding drivers, flaggers, equipment operators, rail personnel or vessels. Provide backup lighting for critical control.

Weather

- Reevaluate for fog, rain, snow, ice, wind, smoke, dust, flooding and sun glare. Clean devices and pavement markings; replace displaced signs and adjust work when visibility or traction is inadequate.
- Stop work for lightning/severe weather under the applicable policy and secure signs, message boards, temporary lighting and loose devices.

Mobile and Short-Duration Work

- Use the approved mobile/short-duration layout, warning vehicles and devices. Short duration does not justify eliminating a control when employee exposure would increase.
- Maintain vehicle spacing, communication and escape. Do not allow the operation to outrun advance warning or leave devices behind.

Railroad, Water and Structures

- Coordinate railroad protective services, fouling limits and access; roadway TTC does not authorize occupation of railroad property.
- Protect navigation, vessel/bridge users and employees over water. On structures, account for narrow lanes, limited escape, barrier deflection, falling objects and emergency access.

Emergency and Incident Conditions

- For crash, disabled vehicle or queue emergency, protect the scene without creating a second hazard, call 911/agency as needed and follow incident-management direction.
- Do not enter live lanes to retrieve devices/debris without appropriate traffic control.

10. Emergency Response, Training and Records

Immediate Response

- For vehicle intrusion, struck device, near miss, worker exposure or public entry: warn the crew, move to protected/escape areas, call 911 when needed and stop affected work.
- Do not pursue a vehicle or stand in traffic to restore devices. Reestablish control using the planned protection method.

Crash / Barrier Impact

- Protect injured persons without entering an uncontrolled lane. Preserve emergency access and coordinate law enforcement/owner.
- Treat impacted barriers, attenuators, signs, arrow boards and supports as out of service until inspected/repaired. Check hidden movement and downstream devices.

Training

- Employees receive orientation on work-zone boundaries, PPE, access, escape, equipment interfaces, public contact, emergency alarms and stop-work authority.
- TTC installers/inspectors, flaggers and those making plan decisions receive role-specific qualification required by WisDOT, project and current manuals. Toolbox talks supplement but do not replace qualification.

Records

- Maintain approved plans/revisions, permits, device inventory, installer/flagger qualifications, inspection logs, photographs, agency communications, complaints, crashes/near misses and corrective actions.
- Record date/time, direction, weather/light, inspector, deficiencies and correction. Document material plan changes and authorization.

Review / Enforcement

- Review annually and after a serious incident, recurring intrusion, regulatory/manual change or new operation. Correct planning, device, training and supervision gaps.
- Unauthorized plan changes, removal/bypass of controls, use of unqualified flaggers or entering live traffic without protection is prohibited and subject to corrective action.

11. Device and Hazard-Control Selection Guide

HAZARD / NEED	PRIMARY CONTROL EXPECTATION
Advance warning	Approved signs/message devices provide notice and decision time
Channelization	Cones/drums/panels guide a clear path; correct type, spacing and ballast
Closure	Barricades/signs establish no-entry; maintain authorized access only
Worker intrusion	Closure, barrier, shadow vehicle, buffer and escape reduce exposure
Drop-off / excavation	Crashworthy barrier and/or fall protection based on exposure
Pedestrians	Continuous accessible channelization, safe surface, ramps and protection
Flagging	Qualified flaggers, STOP/SLOW paddles, sight distance and communication
Night work	Retroreflective devices, task/route lighting and glare control
Equipment crossing	Spotter/traffic control, defined gate, sight distance and communication
Falling objects	Closure, exclusion zone, canopy/net/screen and source restraint
Unattended site	Accurate signs, secure hazards, fencing/gates and after-hours contact
Emergency	Crew alarm, escape, 911/agency access and rapid control restoration

CONTROL HIERARCHY

Whenever feasible, reduce exposure through full closure or detour before relying on channelizing devices and worker awareness. The approved plan and agency authorization govern implementation.

12. Field Work-Area Protection Checklist

VERIFY	EXPECTATION
Plan	Current approved TTC plan/specifications available; phase/layout matches work
Approaches	Advance warning visible from every affected direction and access point
Devices	Correct type, spacing, orientation, condition, ballast and retroreflectivity
Tapers / buffers	Lengths and spacing correct; buffer clear of workers/equipment/material
Work space	Workers/equipment contained; safe access, escape and internal routes
Flaggers	Qualified, visible, correctly positioned, communicating and equipped
Pedestrians	Accessible continuous route/detour; protected from traffic and hazards
Barriers / hazards	Barrier/end treatments/deflection, excavations and overhead work controlled
Night / weather	Lighting, glare, visibility, traction and device stability acceptable
Queues / traffic	Queue contained within warning; speeds/driver behavior monitored
Emergency	Crew alarm, 911/access, incident response and after-hours contact reviewed
Changes	Inspected after setup, shift, impact, weather or phase change; defects corrected

PROJECT / LOCATION:	DATE / SHIFT / WEATHER:
PLAN / STAGE / DIRECTION:	TTC LEAD / INSPECTOR:
TRAFFIC / PEDESTRIAN CONDITIONS:	FLAGGERS / COMMUNICATION:
DEFICIENCIES / INCIDENTS:	CORRECTIVE ACTION / TIME:
REINSPECTED / RELEASED BY:	AFTER-HOURS CONTACT:

13. Test Your Knowledge

Circle the best answer. Review missed questions with your foreman.

1. What normally governs Wisconsin state-highway TTC first? A. The nearest crew's preference B. Project plans, specifications and special provisions C. Old photographs	2. What belongs in a longitudinal buffer space? A. Nothing - keep it free of workers, equipment and materials B. Parked trucks C. Stored drums
3. What do cones and drums provide? A. Crashworthy impact protection B. Fall protection C. Guidance/channelization, not physical crash protection	4. Who may control public traffic as a flagger? A. Any available employee B. A trained, qualified and authorized flagger C. A delivery driver
5. How should TTC generally be installed? A. From advance warning toward the work space B. Starting in the work space without warning C. In any order	6. What is required for a pedestrian route? A. Caution tape only B. A path through equipment C. Continuous, detectable and accessible protection/route
7. When should night TTC be inspected? A. Only at noon B. Under actual nighttime conditions C. Only after a complaint	8. What should happen after a barrier impact? A. Protect the area and inspect/repair before relying on it B. Ignore it if upright C. Move workers into its deflection area
9. What is a stop-work trigger? A. A clean sign B. A clear buffer C. Missing critical control, unsafe queue or lost flagger communication	10. May a crew materially change an approved plan on its own? A. Yes, for convenience B. No - obtain authorized review C. Yes, if traffic is light

EMPLOYEE: _____

DATE: _____

ANSWER KEY: 1-B | 2-A | 3-C | 4-B | 5-A | 6-C | 7-B | 8-A | 9-C | 10-B