

Construction Work Zones

Traffic Control & Guidance

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

Highway, road and street Construction Work Zones (CWZs) are a frequent site of motor vehicle collisions, pedestrian and bicycle incidents. However, with proper planning and oversight of CWZs, many of these injury producing events can be prevented, and the safety of workers also protected.

PLANNING

CWZs can be present for roadway maintenance, utility work, or as part of a construction project. When the normal flow of traffic is changed by activity in or adjacent to a road, a CWZ is created and Temporary Traffic Control (TTC) is required. The Manual on Uniform Traffic Control Devices (MUTCD) is the national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel.

IMPLEMENTATION

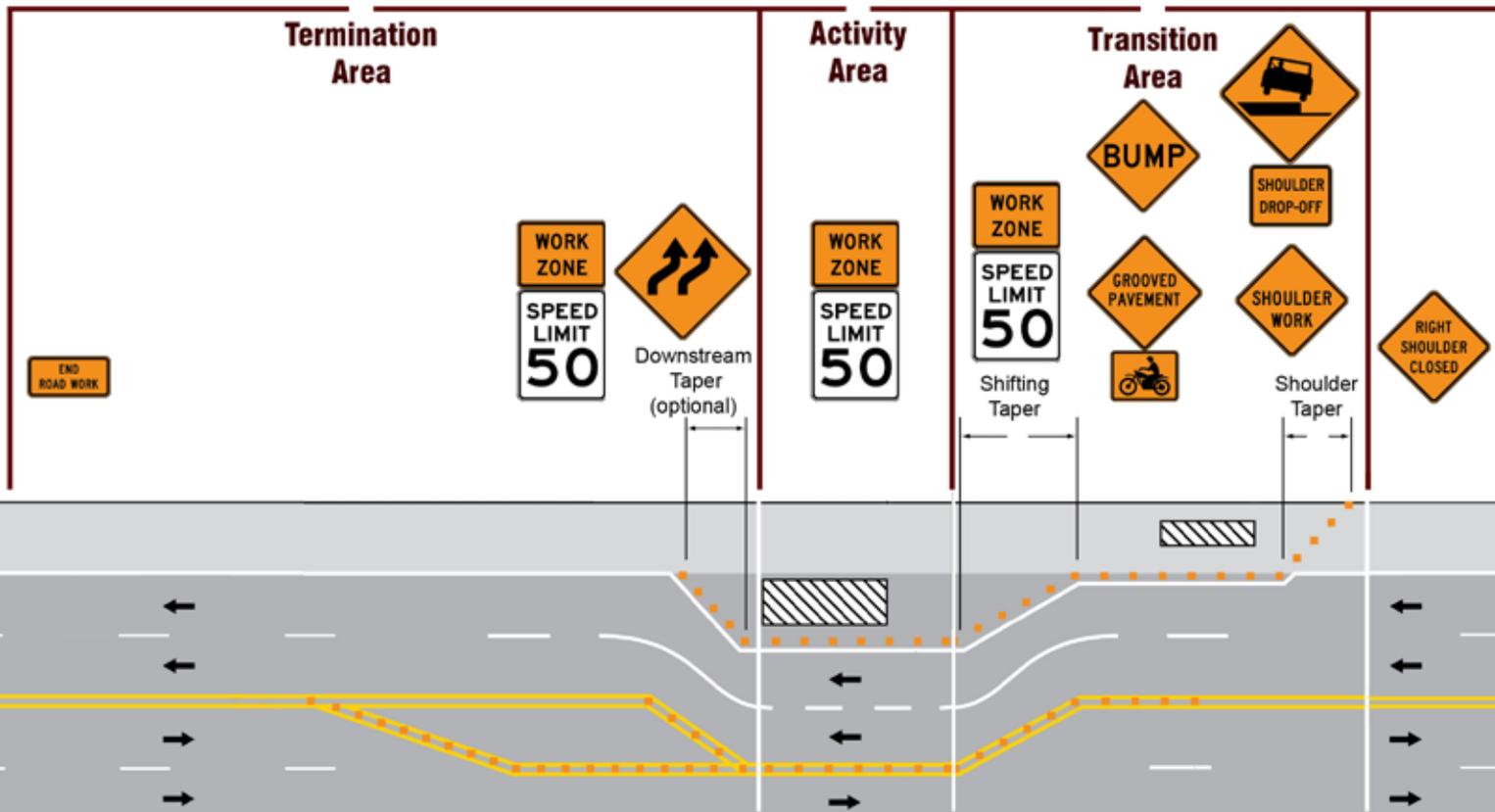
Simultaneously with construction the MOT plan must be implemented to safely direct motorists, including pedestrians and bicyclists, through the CWZ, and protect the construction workers. Implementation includes putting the TTC elements of the MOT plan in place, monitoring the movement of traffic, maintaining the traffic control devices, and making adjustments to the MOT plan, with proper review and guidance, to eliminate conflicts and improper vehicle movements.

TTC should provide motorists with safe and clear warnings and advisories that they are approaching, entering and traveling within a CWZ and guidance about how to do that safely. TTC should be designed on the assumption that drivers will only reduce their speeds if they clearly

perceive a need to do so. Frequent and abrupt changes in geometrics, such as lane narrowing, dropped lanes, or main roadway transitions that require rapid maneuvers, should be avoided. Provisions should be made for reasonably safe work operations, particularly on high-speed, high volume roadways. Bicyclists and pedestrians should be provided with access and reasonably safe passage through the CWZ.

The critical elements of a properly controlled CWZ include:

- 1) Reduced speed,
- 2) Positive guidance, thus guiding motorists in a clear and positive manner as they approach and drive within the CWZ
- 3) Worker protection, such as the use of truck mounted impact attenuators.



FUNDAMENTAL PRINCIPLES

The following principles provide a guiding philosophy of good temporary traffic control and enhance the safety of motorists, pedestrians, bicyclists, and workers in the vicinity of temporary traffic control zones.

1. Traffic safety and temporary traffic control must be an integral and high priority element of every project from planning through design, construction, and maintenance.
2. Inhibit traffic movement as little as possible, providing alternative routes when feasible.
3. Provide clear, frequent, and positive guidance to drivers, pedestrians, and bicyclists as they approach and travel through the CWZ.
4. Inspect traffic control elements routinely and make modifications as necessary.
5. Ensure that all persons who design, select, place, and maintain temporary traffic control devices are properly qualified.
6. Collaborate with law enforcement to implement and enforce traffic regulations, speed zoning, parking controls, and incident management.
7. Keep the public well informed as the CWZ is initiated and construction progresses.

8. If there is a side road intersection or ramps within the work area, additional traffic control, such as flaggers and appropriate signage, may be needed on the side road approaches or ramps; a proactive approach is essential.

TEMPORARY TRAFFIC CONTROL ZONES

Advance Warning Area - Section where road users are informed about the upcoming work zone or incident area. The advance warning area may vary from a single sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle, to a series of signs in advance of the work zone activity area.

Transition Area - Section where road users are redirected out of their normal path. Transition areas usually involve strategic use of tapers. Tapers are created by using a series of channelizing devices and/or pavement markings to move traffic out of or into the normal path. **Activity Area** - Section where the work activity takes place. It is comprised of the work space, the traffic space, and the buffer space. The work space is that portion of the highway closed to road users and set aside for workers, equipment, and material. Work spaces are usually delineated for road users by channelizing devices or, to exclude vehicles and pedestrians, by

temporary barriers. Buffer spaces may be positioned either longitudinally or laterally with respect to the direction of the road user flow.

Termination Area - Section used to return road users to their normal path. The termination area shall extend from the downstream end of the work area to the last temporary traffic control device such as END ROAD WORK signs, if posted.

The example depicts these TTC zones, as well as traffic control devices that are used to regulate, warn, and guide road users. The devices that are placed and their locations are based on CWZ configurations and roadway characteristics, such as, curves, sight obstructions such as bushes & trees, structures, driveways, etc. There is much more to a CWZ than simply the TTCs that were or were not in place. The highway engineers at Robson Forensic can help you determine whether or not a construction work zone was dangerous in a manner that was a cause of the incident you are investigating. When appropriate, and with client approval, we can involve other experts such as: vehicle engineers, commercial vehicle specialists, meteorologists, human factors experts, and construction and lighting experts.

Advance Warning Area



Legend

- Direction of travel
- Channelizing device
- ▨ Work space

Graphic adapted from
MUTCD Sect. 6C.08
(Pg 556)