

DEFINITIONS

Activity Area - that part of a TTC zone activity area where the work actually takes place. It consists of the work space, traffic space and one or more buffer spaces.

Advance Warning Area - that part of a TTC zone used to inform the motorist what to expect ahead. This area may contain anywhere from a single sign or a rotating/strobe light on a vehicle to a series of signs and the use of a portable changeable message sign (PCMS). The location of the beginning of the TTC zone is dependent on its visibility to motorists. Good visibility is achieved where the sight distance is sufficient to meet decision sight distance.

Advance Warning Sign Spacing - the distance between signs or between a sign and some other location or device with the TTC zone. It is determined by the posted speed limit. This will ensure that the motorist has sufficient time to read the signs and react accordingly. Typical Advance Warning Sign Spacings (**A**) are included in the TTC Distance Charts.

Advisory Speed - the recommended speed for all vehicles operating on a section of highway and based on the highway design, operating characteristics, and conditions. (See Layout 6K-77).

Approach Sight Distance - the distance which a motorist can visually identify a work space. The work space may be the flagger station, a lane closure, a slow moving or stopped vehicle, or any other situation which requires adjustments by the motorist.

Attended Work Space - a work space is considered to be attended when the TTC devices are reviewed for knock-downs or other needed adjustments on an hourly basis.

Average Daily Traffic (ADT) - the average 24-hour volume, being the total volume during a stated period divided by the number of days in that period.

Buffer Space - the space which provides a margin of safety for both the driver and the workers. It is important that the buffer space be free of equipment, workers, material and vehicles.

Crashworthy - is a characteristic of roadside devices that have been successfully crash tested in accordance with the National Cooperative Highway Research Program (NCHRP) Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features" or the American Association of State Highway and Transportation Officials (AASHTO) "Manual for Assessing Safety Hardware (MASH)."

Decision Sight Distance - the total distance traveled during the length of time required for a driver to:

- detect an unexpected or otherwise difficult-to-perceive information source or hazard in a roadway environment that may be visually cluttered,
- recognize the hazard or its potential threat,
- select an appropriate speed and path, and
- initiate and complete the required maneuver safely and efficiently.

The decision sight distance is used to determine the minimum advance warning distance to the furthest and/or single sign. When determining minimum sight distance to flaggers and mobile operations, these distances also apply. The required Decision Sight Distances (**D**) are included in the TTC Distance Charts.

Divided Road - a highway or two roadways where opposing traffic is separated by a median (ditch, barrier, curbing, etc.), and the median is generally wide enough to place TTC devices. Temporary traffic control for divided multi-lane roads may be also used for one-way roadways.

Downstream Taper - the taper at the end of the activity area which guides traffic back into its original lane. When used, this taper is a minimum length of approximately 100 feet with a 20-foot spacing between channelizing devices.

Duration - the length of time any work operation occupies a specific location or causes a traffic obstruction without changing the location. This time is measured from the first disruption to traffic until the total clearing of the area. The following durations are defined in overlapping intervals since TTC layouts for longer durations may always be used for shorter durations, especially when roadway attributes such as traffic volume and speed, and the work space location may warrant higher levels of traffic control.

- **Mobile** - when an operation is continuously moving or stopped in one location for periods of 15 minutes or less. The traffic control devices are typically vehicle-mounted. The work area should change by at least the decision sight distance for it to be considered a change in location.
- **Short Duration** - when an operation stays in one location during daylight conditions from 15 minutes to one hour, such that minimal TTC devices are deployed.
- **Short Term** - when an operation stays in one location during daylight conditions from 15 minutes to twelve hours, such that advance signing and channelizing devices are required.
- **Intermediate Term/Night** - when an operation stays in one location during daylight conditions from 15 minutes to no more than 3 days, or stays in one location during hours of darkness. Advance signing and larger channelizing devices (Type B) are required.
- **Long Term** - when an operation stays in one location for more than 3 days. A project specific Traffic Control Plan is typically required.

Engineering Judgment - the evaluation of available pertinent information, and the application of appropriate principles, standards, guidance, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgment is not required.

Expressway - any multi-lane, divided highway for through traffic with partial control of access and generally with at-grade intersections.

Following Distance - the distance in a mobile operation between the shadow vehicle and the work vehicle. It is used to provide advance warning to traffic that some type of work is being done within the traffic lane. Traffic will have to change lanes, slow down and wait for a safe time to pass, or adjust their position within the lane to allow for a narrower traffic lane. The shadow vehicle shall be equipped with appropriate advance warning signing. Typical Following Distances (**F**) are included in the TTC Distance Charts. This distance is a range with a minimum of the recommended distance between advance warning signs (**A**), and a maximum of the decision sight distance. These distances are dependent upon the roadway and traffic conditions. Engineering judgment should be used when selecting distances for specific operations.

Freeway - any divided highway with full control of access (i.e. has ramps and no at-grade intersections).

High Speed Road - a roadway where the posted speed limit is 45 miles per hour or higher.

Lane Closure - a closure of one or more lanes of the roadway to traffic. Work operations that restrict adjacent lane width should consider various lane closure alternatives depending upon volume and speeds on the roadway.

Lane Width - for traffic control purposes, a minimum lane width of 10 feet shall be provided.

Lateral Buffer Space - the space that separates the traffic space from the work space. It is typically the extra space provided between traffic and workers, excavations, pavement edge drop-offs, or an opposing lane of traffic. Traffic lanes may be closed to provide for lateral buffer space. See the Longitudinal Drop-off Guidelines (pages 6K-xxi thru 6K-xxiii) of this manual for more information.

Longitudinal Buffer Space - the distance between the transition area and the work space. If a driver does not see the advance warning or fails to negotiate the transition area, a buffer space provides room to stop before the work space. Typical Longitudinal Buffer Spaces (**B**) are included in the TTC Distance Charts.

Low Speed Road - a roadway where the posted speed limit is 40 miles per hour or lower.

Merging Taper - the taper used on a multi-lane road to close a lane and combine its traffic from that of the adjacent lane. Its length is dependent on the posted speed of the roadway. Higher speeds require a longer distance for traffic to merge lanes. Typical Merging Tapers (**L**) are included in the TTC Distance Charts.

Mobile Buffer Space - the distance in a mobile operation between the shadow vehicle and the work vehicle. This distance is dependent on whether the shadow vehicle is being used as an advance warning device or as a blocking/protection device for the work vehicle.

Motorist - an operator of a motorized vehicle intended to be used on a roadway.

Multi-Lane Road - a roadway where two or more lanes of traffic travel in the same direction. A multi-lane roadway may be classified as either undivided or divided.

Occupied Work Space - a work space is considered to be occupied when workers are present within the work space. TTC devices should continuously be reviewed by workers and adjustments made as needed.

Off Shoulder - a work space located primarily off of the shoulder, or which causes little or no restrictions on the use of the shoulder. This work space should have little or no interference with traffic such that traffic speeds generally are not reduced.

Portable Changeable Message Sign (PCMS) - a sign either trailer-mounted or vehicle-mounted that is capable of displaying more than one message, changeable by remote or automatic control.

Posted Speed Limit - the speed limit determined by law and shown on Speed Limit signs. It is used in the charts to determine the spacings of TTC devices and the lengths of various tapers on the TTC Layouts. Typical Posted Speed Limits (**S**) are included in the TTC Distance Charts.

Protection Vehicle - the vehicle that is placed in advance of the work space and equipment to block errant motorists from entering the work space.

Road, Roadway - That portion of a highway improved, designed, or ordinarily used for vehicular travel and parking lanes, but exclusive of the sidewalk, berm, or shoulder even though such sidewalk, berm, or shoulder is used by persons riding bicycles or other human-powered vehicles.

Roll Ahead Distance - the recommended minimum distance between a protection vehicle and the work space. A protection vehicle may be used in a mobile operation to provide extra safety for the workers. Typical Roll Ahead Distances (**R**) are included in the TTC Distance Charts.

Roundabout - a circular intersection with yield at entry, which permits a vehicle on the circulatory roadway to proceed, and with deflection of the approaching vehicle counterclockwise around a circular island.

Rural Highway - a highway where traffic is normally characterized by lower volume, higher speed, fewer turning conflicts and fewer conflicts with pedestrians.

Shadow Vehicle - the vehicle placed behind the work space in a mobile operation to provide advance warning to motorists. Because mobile operations generally have all advance warning signing mounted on vehicles, the spacing between vehicles should be the Following Distance (**F**) as included in the TTC Distance Charts.

Shifting Taper - the taper used to move traffic from the traffic lane onto a bypass or shoulder. This traffic maneuver generally requires half the distance than a merging taper. See the TTC Distance Charts for the length of a shifting taper called **L/2**.

Shoulder Closure - a closure of the roadway shoulder for work operations. The shoulder then becomes unusable by traffic for vehicle maneuvers or break-downs. TTC layouts for work operations using or on a shoulder are dependent on the type of shoulder usage and duration.

Shoulder Taper - the taper used to close the shoulder off to traffic so that shoulder work can be done or equipment can be placed on the shoulder. Since this taper is used to guide errant traffic back to its normal lane path, it does not require a full merge distance. The taper length is reduced to one-third of a merging taper length. See the TTC Distance Charts for the length of a shoulder closure taper called **L/3**.

Temporary Pedestrian Access Route (TPAR) - a temporary, continuous and unobstructed walkway within a pedestrian circulation path that provides accessibility.

Temporary Traffic Control (TTC) Plan - a plan describing the traffic controls to be used for facilitating vehicle and pedestrian movements through a temporary traffic control zone.

Temporary Traffic Control (TTC) Zone - an area of a highway where road user conditions are changed because of a work zone or incident by the use of temporary traffic control devices, flaggers, uniformed law enforcement officers, or other authorized personnel. See Figures 6K-6 and 6K-7, Component Parts of a Temporary Traffic Control Zone.

Termination Area - that part of a TTC zone located beyond the work space which guides traffic back into its normal traffic path. A longitudinal buffer space may be used between the end of the work space and the beginning of the downstream taper.

Traffic Control Device - a sign, signal, marking, or other device used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or shared-use path by authority of a public agency having jurisdiction.

Traffic Space - that part of the roadway open to traffic that is next to the activity area. Traffic routing is provided with channelizing devices of various sizes and shapes. For a description of the various types of channelizing devices and their general uses, see the Temporary Traffic Control Devices Section (page 6K-xiii) of this manual.

Transition Area - that part of the TTC zone that moves the traffic from its normal path or lane into the traffic space. This movement of traffic is done through the use of channelizing devices and directional signing placed in various types of tapers.

Turn Lane Closure - the closure of a right or left turn lane for work operations. Signing in the TTC zone shall provide adequate warning to the motorists and provide an alternative turning maneuver. Layouts from the various roadway types should be reviewed for the best alternate depending upon roadway intersection design, traffic control (stop, yield, signals, etc.), speed limit and volume.

Two-Lane, Two-Way Road - a roadway consisting of two opposing lanes of undivided traffic.

Two-Way Left Turn Lane - that part of the roadway that has a continuous two-way left turn lane located between the opposing lanes of traffic. This design variation may be found on either two-lane, two-way roads or multi-lane roads.

Two Way Taper - the taper used on two-lane, two-way road to change the road into a single lane of two-way traffic. It is primarily used for flagging operations and other traffic control situations. It is typically 50 feet in length and contains five equally spaced channelizing devices.

Undivided Road - a roadway where opposing traffic lanes have no physical separation barriers except pavement markings (where required).

Urban Street - a type of street normally characterized by relatively low speed, wide ranges in traffic volume, narrower roadway lanes, frequent intersections, significant pedestrian traffic, and more roadside obstacles.

Volume - the number of vehicles passing a given point on the roadway or, the Average Daily Traffic (ADT).

Work Space - that part of the TTC zone closed to traffic and set aside for workers, equipment and materials. The space requirements for a specific TTC Zone will determine the type of TTC layout that is appropriate for the project. The layout will specify the appropriate sign locations, flagger stations and tapers depending on the type of work space.

Work Zone Speed Limits - a regulatory speed limit in a temporary traffic control zone. This speed limit requires proper documentation to approve and install. See *Work Zone Speed Limit Guidelines* at the following website for details:

<http://www.dot.state.mn.us/speed/pdf/WZSpeedLimitGuideline.pdf>