



QATAR TRAFFIC CONTROL MANUAL

Glossary



Glossary

85th percentile speed

The speed, determined by a scientific speed survey, that 85 percent of the traffic travels at or below. For the purposes of signal-controlled intersections, it is the 85th percentile speed of free-flowing vehicles measured at a prescribed distance from the intersection.

85th percentile speed has been used in the QTCM for the determination of sign sizes as this determination is reliant upon the approach speed of vehicles and ensuring that signs are legible to road users in sufficient time for them to react to the sign's message. For new roads the design should be 'self-explaining' in that all the characteristics are safe for the design speed. Given the individual variability of road users, design speed is compatible with 85th percentile speed to provide an overall safe design.

15th percentile speeds are also measured for some purposes.

Aleph height

A measurement of the size of Arabic characters, defined as 1.7 times the x-height of English text.

Arabic numbers (Western Arabic numbers)

The numerals 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.

Auxiliary lanes

Traffic lanes comprising of slow vehicle lanes, overtaking lanes, turnouts, and traffic lanes on merges provided on high-speed roadways.

Average annual daily traffic (AADT)

The total yearly two-way traffic volume divided by 365 (the number of days in the year).

Ballotini

Small (generally spherical) glass beads used in reflective paint for pavement markings (from the Italian "small balls").

Barrier-separated lane

A user-specific lane or other special-purpose lane that is separated from the adjacent general-purpose lane(s) by a physical barrier.

Bicycle (bike)

A pedal-powered vehicle upon which the human operator sits.

Bike path

A path set aside for exclusive use by bikes.

Botts' dot

A nonreflective, surface-mounted raised pavement marker, circular in nature and generally white. Usually used in a series, often to help make the painted lines separating lanes last longer.

Build-out

Traffic management device built into a section of roadway usually consisting of one or two curb extensions to provide a visual and physical break in the continuity of the roadway.

Buffer-separated lane

A user-specific lane or other special-purpose lane that is separated from the adjacent general-purpose lane(s) by a pattern of standard longitudinal road markings that are wider than a normal lane line marking.

Bus lane

A lane reserved for exclusive use by buses.

Cableless linked facility (CLF)

A signal control strategy that is essentially fixed time, but controlled entirely by the signal controller that relies on its own internal clock for synchronization with other controllers operating a fixed-time plan operating at the same cycle time.

Chicane

A safety feature built into a section of roadway usually consisting of two consecutive sharp bends in opposite directions to slow vehicles down when approaching.

Chromaticity

An objective specification of the quality of a color, regardless of its luminance.

Clearance plan

A document that forms part of a traffic diversion plan that includes a method statement outlining safe working practices and methodologies for the clearance of temporary traffic management.

Clear zone

The roadside area adjacent to the nearest traffic lane available for safe use by errant vehicles. This area must be relatively flat, kept clear of non-frangible hazards, and free of workers.

Conflict (conflicting)

Where two or more traffic movements cannot be given right-of-way simultaneously due to the likelihood of a crash between the parties, they are said to conflict. Conflicting signal groups (movements) cannot be run within the same phase of a given traffic signal sequence. All conflicting signal groups must have a clearance period between them to allow the traffic on one movement to clear the zone of potential conflict before the other traffic movement reaches the conflict zone.

Conspicuity

The property of being clearly discernible.

Contiguous lane

A lane, user-specific or otherwise, that is separated from the adjacent lane(s) only by a normal lane line marking.

Controller (traffic signal controller [TSC])

The microprocessor-based equipment that controls the illumination of the traffic signals. It stores signal group and phase information, as well as any demand dependent configurations. The controller also makes use of vehicle detection data to demand and extend signal phases.

Countdown

Countdown is a means of indicating to the road user (pedestrian, cyclist, or motorist) how much time there is left before an event occurs. The event can be anything, but are particularly used to show the number of seconds pedestrians have left to cross a road safely. The indication is often a timer indication, counting down the time to the event in seconds.

Cycle time (cycle length)

The time required to allow all necessary signal phases (or collection of signal groups) the right-of-way before the sequence repeats itself. The cycle time can be measured from any point in the sequence, and is ended when the sequence has completed all movements and has returned to that same point in the cycle. Cycle times range from about 40 seconds to 300 seconds, depending on requirements.

Delineator

A retroreflective device mounted at the side of the roadway in a series to indicate a change in the alignment of the roadway, such as at lane-reduction transitions and curves. Delineators are particularly useful to motorists at night or in adverse weather.

Detector

A device that detects the presence of vehicles or pedestrians. Examples include the inductive loop, the microwave vehicle detector (MVD), and the video detector. Note: When detectors fail, they are designed to appear as if they are permanently on.

Diversionsary route

A temporary change in route due to a roadway closure (such as a construction site) or because of continuing unacceptable levels of congestion. Sometimes such a diversion may be necessary only for traffic proceeding in one direction.

Divided roadway

A two-way roadway on which the lanes for travel in opposite directions are separated by a median.

Dynamic message sign (DMS)

A large, electronic sign used for traffic control that is capable of displaying one or more alternative messages that may be changed or switched on or off as required. The display can be changed manually, by remote control, or by automatic control. A dynamic message sign can overhang or be located along side a roadway and are typically used to display information about traffic conditions, travel times, construction, and road incidents.

Electronic toll collection (ETC)

A system for the automated collection of tolls from moving or stopped vehicles using wireless technologies such as radio-frequency communication or optical scanning.

Expressway

A divided roadway for through traffic with partially controlled access and that normally has grade separation at intersections.

Flag sign

A rectangular-shaped sign with a pointed end used to indicate direction.

Freeway

A divided roadway for through traffic with fully controlled access and that has grade separation at intersections.

Gap acceptance

At an intersection where traffic on the major roadway has priority, the traffic on the minor roadway that wants to cross or merge with the traffic on the major road must determine the time interval between approaching vehicles on the major roadway so that crossing or merging vehicles can safely complete the maneuver. Pedestrians who cross the roadway against the light (without the green man illuminated) must make a similar decision.

Green split

The pre-timed proportion of the cycle time that is allocated to each of the signal groups (movements of traffic) at a given intersection.

Hazardous Material

A hazardous material is defined as any substance or material could adversely affect the safety of the public, handlers or carriers during transportation. Hazardous material include: explosives, compressed gases, flammable liquids and solids, oxidizes and organic peroxides, toxic materials, radioactive materials and corrosive materials.

High-occupancy vehicle (HOV)

A motor vehicle carrying at least two or more persons, including carpools, vanpools, and buses.

HOV lane

A traffic lane reserved for the exclusive use by high-occupancy vehicles.

Illuminance

The illuminance or light level is the amount of light energy reaching a given point on a defined surface area, namely the luminous flux (i.e., lumens) per square meter.

Implementation plan

A document that forms part of a traffic diversion plan that includes a method statement outlining safe working practices and methodologies for the implementation of a work zone traffic management scheme (WZTMS). Where work is staged, the implementation plan shall also describe the procedures to be followed for each changeover of temporary traffic management arrangements.

Indian numbers (Eastern Arabic numbers)

The numbers ٠, ١, ٢, ٣, ٤, ٥, ٦, ٧, ٨, and ٩.

Inductive loop

An energized coil of cable buried in the roadway that uses the disturbance to the electric field caused by the ferrous materials in vehicles passing over it to detect those vehicles. Each detection event is sent to detector packs in the controller where the electrical signal is processed. It is normally passed on as input to the signal control strategy.

Information sign

A sign that provides road users with information of the route they are on and the facilities on or near their location, such as city limits or other political boundaries, time zones, stream names, elevations, landmarks and similar items of geographical interest, and safety and transportation-related messages.

Inside lane

The lane of a multi-lane roadway nearest the verge or curb, pedestrian path, or bike path. Sometimes referred to as the “nearside lane.”

Interchange

A system of interconnecting roadways providing for traffic movement between two or more roadways that do not intersect at grade.

Intersection

A place where at least two roadways meet, especially where one is a major roadway.

Island

A defined area between traffic lanes for control of vehicular movements, toll collection, or pedestrian refuge. It includes all end protection and approach treatments. Within an intersection area, a median or an outer separation is considered to be an island.

Light rail transit

An urban public transport system comprised of railed vehicles that commonly, but not necessarily, travel on roadways intermingling with vehicular traffic.

Longitudinal markings

Road markings that are generally placed parallel and adjacent to the flow of traffic such as lane lines, warning lines, edge lines, channelizing lines, and pedestrian crossings.

Luminance factor

The ratio of the luminance of a body when illuminated and observed under certain conditions to that of a perfect diffuser under the same conditions.

Mandatory sign

A sign that tells road users what they must do.

Magnetometer

A type of detector that is mounted below the surface of the roadway. It is designed to detect the presence or passage of a vehicle by measuring the change in the Earth's quiescent magnetic field caused by a ferrous metal object (such as a vehicle) when it enters the detection zone of the sensor.

Mast arm

An L-shaped traffic signal post and arm on which traffic signals are mounted to provide signals for lanes not adjacent to the curb or central median.

Median

The area between the opposite directions of travel on a divided roadway. The median excludes turn lanes and might be different widths between intersections, interchanges, and at opposite approaches of the same intersection. The median can include refuge islands for pedestrians and cyclists.

Method Statement

A summary of proposed procedures, prepared by the traffic diversion plan designer to describe the safe implementation, maintenance, and clearance of temporary traffic management measures.

Metro

An underground or overhead urban transit railway system.

Merge

The point where a lane of traffic is required to join with another lane of traffic at locations where a lane is closed or is discontinued.

Microprismatic

Prismatic technology works by refracting light from its inner surfaces. Light strikes the surfaces of the microprism before returning to its light source.

Microwave vehicle detector (MVD)

A type of vehicle detector that uses Doppler radar to detect an approaching (or receding) vehicle. Microwave vehicle detectors are often mounted on the top of a standard signal post.

Mid-block pedestrian crossing

A signal controlled crossing point that is between intersections and designed specifically to allow pedestrians to cross. Also known as a “standalone” crossing.

Minor roadway

A generally low-volume roadway carrying almost exclusively local traffic.

Network traffic impact assessment

Details of traffic analysis and modelling to assess the impact of temporary works and diversions on the wider traffic network. May require micro-simulation for high-impact schemes.

Non-motorized users (NMU)

A term used to refer to road users who are not in motor vehicles or on motorcycles (such as bicyclists, pedestrians, and wheelchair users).

Open-roadway ETC lane

An unattended lane that is designed to allow toll payments to be electronically collected from vehicles traveling at normal roadway speeds. Open-roadway electronic toll collection (ETC) lanes are typically physically separated from the toll plaza, often following the alignment of the mainline lanes, with toll plaza lanes for cash toll payments being on a different alignment after diverging from the mainline.

Open-roadway tolling

A system designed to allow electronic toll collection (ETC) from vehicles traveling at normal roadway speeds. Open-roadway tolling might be used on toll roadways or toll facilities in conjunction with toll plazas. Open-roadway tolling is typically used on managed lanes and on toll facilities that only accept payment by ETC.

Overseeing Organization

A representative organization authorized to approve the use of traffic control devices on the Qatar roadway network.

Offset

The difference in time between the start of a phase or signal group at one intersection and the start of a complementary phase or signal group at an adjacent intersection. The offset is the time period that can be altered to ensure that there is adequate progression of traffic from one intersection to the next.

Outside lane

The lane of a multi-lane roadway furthest from the verge, pedestrian path, or bike path and nearest the central median or lane marking. Sometimes referred to as the “offside lane.”

Pedestrian

Person traveling on foot, using mobility aids (such as a wheelchair), or walking with a bike, pram, pushchair, or animal.

Pedestrian crossing

A portion of a roadway used by pedestrians to cross from one side of the roadway to the other, or to a median island. Usually delineated by white stripes approximately parallel to the centerline of the roadway, and indicated by the display to vehicular traffic of specific signs and zigzag markings.

Pedestrian refuge

An island, usually in the median, provided as a staging area for pedestrians crossing a roadway.

Pedestrian signal aspect

The signal equipment used to communicate the right-of-way being given to pedestrians. The right-of-way is indicated by an illuminated red man to denote that it is not safe to cross the roadway and an illuminated green man to denote that it is safe to begin crossing.

Phase sequence

The order in which traffic phases appear within a full cycle of the traffic signals.

Primary traffic signal

A traffic signal that is placed close to the stop line defining the area that vehicles must not cross when the signals are red. The primary signals must be located at the inside lane, and a duplicate set of signals can be mounted on the outside lane.

Prime sign

A sign located where there is a change of the mandatory, posted speed or at the start of a prohibition.

Program of Inspections

A structured approach to the inspection and review of work zone traffic management schemes by defining the responsibility for specific reviews and inspections throughout the duration of the works.

Prohibitory sign

A sign that tells road users what they must not do while using the roadway.

Qatar Highway Design Manual (QHDM)

The manual for roadway design in Qatar.

Q-PRO

Ashghal's internet based system for the management of Roadway Opening Permits and coordination of works on the roadway network

Railway crossing

Any crossing of a railway that is provided for vehicular traffic and other road users

Raised pavement marker

A retroreflective device mounted in the roadway in a series to indicate the alignment of the roadway, especially at night or in adverse weather.

Raised table crossing

A flat topped speed hump with specific dimensions to enable pedestrians to cross from a pedestrian path to a pedestrian path opposite on the plateau of the raised hump.

Regulatory sign

A sign that gives notice to road users of traffic laws or regulations. Regulatory signs can be either mandatory or prohibitory.

Retroreflectivity

The ability of a surface to return light back to its source.

Right-of-way

The area of public roadway, generally between property boundaries, including roadways, bike paths, pedestrian paths, verges, and medians.

Roadway Opening Permit (ROP)

A permit granted by the Overseeing Organization allowing the undertaking of works on the roadway network.

Road stud

See raised pavement marker.

Road user

Any person making use of any part of a roadway, including pedestrians, cyclists, and drivers of motorized vehicles.

Roadway

The paved area of the roadway used by motorized vehicles to travel from one place to another.

Safety buffer

The area provided around the work zone to protect construction workers from traffic. No one must enter the safety buffer in the normal course of work. It should only be necessary to enter this area to maintain cones, barriers, and roadway signs. Materials and equipment must not be placed in this area.

Speed hump

A raised transverse section of roadway causing vertical displacement of vehicles that is implemented as a speed reduction measure.

Stack-type sign

A rectangular direction sign used at an intersection to indicate destinations in a number of directions. The sign shows the upcoming exit, left exit, and right exit in that order.

Stakeholder management plan

Schedule of stakeholders likely to be affected by the transportation project works and details of how they will be notified and engaged throughout the life of the project.

Roundabout

An intersection laid out for the movement of traffic in one direction around a central island.

Rumble strips

A series of intermittent, narrow, transverse areas of rough-textured, slightly raised, or depressed roadway surface that extend across the travel lane to alert road users to unusual traffic conditions or are located along the shoulder, along the roadway centerline, or within islands formed by road markings to alert road users that they are leaving the travel lane.

Safety barrier

A temporary concrete or steel barricade that prevents passage into a dangerous area, meets minimum containment testing criteria, and is capable of providing redirection of vehicles with minimal deflection of the barrier.

School zone

A designated roadway segment approaching, adjacent to, and beyond school buildings or grounds, or along which school-related activities occur.

Secondary traffic signal

A traffic signal that is placed in addition to a primary signal to provide greater visibility of the signals, particularly for road users waiting at the stop line. Secondary signals can be placed on the same side of the intersection as the primary signals (closely associated secondary signals) or on the far side of the intersection (far-sided secondary signals).

Selective vehicle detection (SVD)

With special equipment, vehicles such as buses or emergency vehicles can be selectively detected on an approach to an intersection. A variety of systems are available that implement selective vehicle detection.

Separated path

A path outside the roadway that is signed for separated use on which bikes and pedestrians are required to use separate, designated paths.

Shared path

A path outside the roadway that is signed for shared use on which pedestrians and all classes of bikes use a common path. Shared-use paths are also used by pedestrians (including users of manual and motorized wheelchairs, prams, and pushchairs) and other authorized motorized and non-motorized users.

Sidewalk

The portion of a street between the curb line or the lateral line of a roadway, and the adjacent property line or on easements of private property that is paved or improved and intended for use by pedestrians.

Signal control mode

Signal controllers normally have a number of different control modes. They allow the controller to be controlled by different sources – for example, centrally, locally, or manually. The modes are specified as part of the controller design and configuration.

Signal control strategy

Traffic is controlled by the signals using a signal control strategy. Examples of strategies include fixed time, vehicle actuated and cableless linking facility. A variety of proprietary systems are available.

Signal coordination

The coordination of multiple signal controlled intersections within a wide area used to minimize delay to vehicles, which is often achieved by optimizing the progression of traffic between intersections.

Signal face

An assembly of one or more signal sections that is provided for controlling one or more traffic movements on a single approach.

Signal group

A group of signal heads that control a given movement or combination of movements of traffic (traffic stream) through an intersection. A single electrical circuit controls a number of signal heads in exactly the same way.

Signal head

An assembly of one or more signal faces that is provided for controlling traffic movements on one or more approaches. An individual signal unit is generally comprised of red, yellow, and green signal indicators.

Slow vehicle lane

A traffic lane provided on roadways for trucks and other slower-moving vehicles.

Speed measurement marking

A white transverse road marking placed on the roadway to assist the enforcement of speed regulations.

Temporary traffic management (TTM)

The physical measures and combination of traffic control devices used to guide all road users through a work zone or around an incident while ensuring the safety of road users and construction workers or emergency personnel.

Temporary sign

A sign for specific use at a work zone or other temporary situation that alerts road users to potential hazards or provides legal requirements.

Temporary water-filled barricade

A delineation device that can be filled with sand or water. Although they have a similar size and appearance to concrete barriers, they do not offer similar levels of deflection and, therefore, must not be used where safety barriers are specified.

Thermoplastic

A plastic material that is capable of softening or fusing when heated and of hardening again when cooled. This material is often used for raised pavement markers and rumble strips

Toll lane

An individual lane located within a toll plaza in which a toll payment is collected or, for toll-ticket systems, a toll ticket is issued.

Toll plaza

The location at which tolls are collected consisting of a grouping of tollbooths, toll islands, toll lanes, and, typically, a canopy. Toll plazas might be located on roadway mainlines or on interchange ramps. A mainline toll plaza is sometimes referred to as a barrier toll plaza because it interrupts the traffic flow.

Traffic

In general use, any road user or group of road users that pass along or across a roadway. The term may be qualified by “pedestrian,” “vehicular,” or “non-motorized user” to clarify the type of traffic.

Traffic aspect

Defines the red, yellow, and green traffic signal units (circular or arrow signal indications) mounted in the traffic signal head. Most signal heads comprise three aspects, although it is possible to have up to six.

Traffic diversion plan (TDP)

A set of documents produced by an agency proposing works, or their contractor, that details the processes to be followed for a specific work zone to plan, gain approval, implement, maintain,

and clear temporary traffic management devices associated with that work zone in a safe and effective manner. The TDP will contain various documents, including but not limited to traffic management drawing(s), implementation plan and clearance plan, and details of the program of inspections that will be applied.

Traffic Management Centre (TMC)

The center of operations for the control of the traffic signals. This center is often a means of operating a network of signal controlled intersections using cable, fiber-optics, or radio links to each signal controller. The center may include monitoring and other control functions, such as those for dynamic message signs.

Traffic phase

A collection of nonconflicting signal groups operating during the same time period.

Traffic signal

A traffic control device by which traffic, including pedestrians and cyclists is alternately stopped and allowed to proceed, thereby avoiding conflict among traffic streams.

Tram lane

A traffic lane containing a tram track in which there are full-time or part-time restrictions on use of the lane by road users other than trams.

Transit lane

A traffic lane reserved for the use of specific high-occupancy vehicles.

Transverse markings

Road markings that are generally placed perpendicular and across the flow of traffic such as word, symbol, and arrow pavement markings; stop lines; and parking space markings.

Truck lane

A traffic lane reserved for the use of trucks.

Truck-mounted attenuator (TMA)

A shock-absorbing device mounted on the rear of a works' vehicle intended to reduce the level of damage to vehicles, road users, and construction workers resulting from an impact by an errant vehicle. The term also covers approved trailer-mounted attenuators.

Turnout

A traffic lane provided on low-speed roadways where it is not possible to provide a slow vehicle lane or an overtaking lane, to allow traffic to overtake slower-moving vehicles.

Undivided roadway

A two-way road on which the lanes for travel in opposite directions are not separated by a median.

Vehicle actuation (VA)

A control strategy used for phase selection and extension based upon vehicular movement. The detection of vehicles is normally the main input for the strategy.

Vehicle restraint system (VRS)

A physical barrier separating the roadway and specific hazards that is designed to resist penetration by an out-of-control vehicle and, as far as reasonably practicable, to redirect an out-of-control vehicle back into the travel lane.

Video detector

A type of vehicle detector that uses a video image having a “virtual” loop placed within the image to detect an approaching vehicle. Such a detector can be used to detect vehicles moving in a particular direction as well as detecting occupancy within an area. They can be mounted to be forward facing, rear facing, or side facing.

Warning sign

A sign that alerts road users of a situation that might not be readily apparent on the roadway ahead, such as a curve or a work zone.

Working drawing

A drawing detailing the design of a traffic sign or road marking.

Working space

The space around the works area where tools, excavated materials, equipment, and plants may be stored. It is also needed for the workforce to occupy in order to carry out the works.

Works

A general term relating to the construction or maintenance of the roadway or of equipment or services located on, above, below, or in the immediate vicinity of the roadway.

Works area

That area of roadway that is occupied by construction or maintenance operations.

Work zone

The area of roadway occupied by the works area itself and any additional areas of roadway required for advance warning signs, tapers, safety barriers, delineators, safety buffers, and any other function associated with the works.

Work Zone Road Safety Audit

A structured audit carried out at specified stages in the work zone traffic management scheme process, which specifically examines the elements of temporary traffic management to confirm compliance with the practices detailed in Ashghal’s *Work Zone Traffic Management Guide*.

Work zone traffic management system (WZTMS)

A system of procedures and guidelines that enable safe and efficient roadway construction and maintenance works for all road users and the workforce.

X-height

A measurement of character size defined by the height of a lowercase x.