



**Waterman Boreham**  
Transport Planning



# A Glossary of Common Transport Planning Terms

## AADT (Annual Average Daily Traffic)

This is the total estimated daily volume of vehicle traffic on a road. It is obtained by dividing the total annual flow by 365 (days). AADT is a useful and simple measurement of how busy a road is, and is used as a starting point for new road design. It is normally expressed as a 2-way flow, but can be expressed in terms of a flow in a particular direction.

## AAWT (Annual Average Weekday Traffic)

Whilst AADT considers an average that includes all days, AAWT is defined as the average of flows for weekdays (Monday to Friday) within the year. AAWT is normally higher than the AADT for a particular road.

## All Round Pedestrian Stage

This is a period where all traffic is stopped at a traffic signal junction to allow pedestrians to cross all arms of a junction. This is more common in urban areas. This is sometimes, mistakenly, referred to as an "all red stage".

## ARCADY

ARCADY is a helpful tool to aid the traffic engineer in designing new roundabouts as well as assessing the effects of modifying existing layouts. It has been developed over the last 20 years by the Transport Research Laboratory (TRL) and is used for predicting capacities, queue lengths, delays and accident risk at roundabouts.

## Assignment and Distribution

Trip distribution and assignment are terms used to describe how generated traffic is likely to use the local road network. Within a Transport Assessment, the proposed development can act as the origin and/or destination in terms of assignment. In the case of retail development, it is important that these match the assumptions made in the Retail Impact Study.

## ATC (Automatic Traffic Count)

These can be conducted by placing pneumatic tubes across the road, often for periods of one week or more, to record the number of vehicles travelling in each direction. Permanent monitoring sites are also in place around the UK recording traffic passing over induction loops cut into the road surface. In addition to the total traffic flow, it is possible for an ATC to record more specific data, including individual vehicle speeds and vehicle types.

## COBA (COst Benefit Analysis)

The COBA computer program compares the costs of providing road schemes with the benefits derived by road users (in terms of time, vehicle operating costs and accidents) and expresses the results in monetary terms.

## CPZ (Controlled Parking Zone)

A CPZ is an area where parking is controlled. Some limited parking may be allowed for short periods of time. In general the parking is restricted to local residents with permits. The times of the zone will be displayed on the zone entry signs, which will be present on all routes in the zone.

## Cycle Time

At a signalised junction the cycle time is the period required for all approaches at the signals to run. This is measured as the time which elapses between the start of an approach and the point at which that particular approach starts again. Typically a cycle time may be up to a maximum of 120 seconds.

## Degree of Saturation (DoS)

Degree of Saturation (DoS) is the ratio of the actual traffic flow to the maximum flow, and indicates how much demand a lane/or lanes can take or approach is experiencing compared to its total capacity. A DoS of 90% on an approach to signals indicates that it is approaching its theoretical capacity and a value of above 100% indicates that it has exceeded its absolute capacity. See also RFC.

## Diverted Trips

Diverted Trips are where vehicles use new or improved facilities in place of existing, previously used facilities. The trips are already present on the local road network but not the road from which the site access is to be taken and will divert from their existing route to access the site.

## DMRB (Design Manual for Roads and Bridges)

The DMRB is a Stationery Office publication containing current Standards, Advice Notes and other guidance documents relating to the maintenance, operation and improvement of motorways and trunk roads. It is often applied by highway authorities to non-trunk roads, however, greater flexibility may be appropriate in these cases.

## Filter Arrow

A filter arrow is a green arrow displayed on its own, normally a left hand arrow, with an associated full signal head. It is then followed by a full green at the associated signals. Unlike an indicative arrow, filter arrows are commonly run in parallel with a non-conflicting movement from the opposing approach. *See also indicative arrow*

## Fixed Time

Is a term which describes the operation of certain traffic signal systems where the amount of time allocated to any particular traffic (or pedestrian) movement remains constant and does not vary in response to vehicular traffic or pedestrian levels.

## Highways Agency (HA)

The HA is responsible for the Strategic Road Network (SRN) and has the power to direct a refusal of a planning application which it believes would adversely affect the operation or safety of an SRN.

## Indicative Arrow

An indicative (green) arrow is used to provide an unopposed period for right turning traffic, which may also turn in gaps in the opposing traffic for parts of its cycle. These arrows are displayed with a full green signal.

## Kiss and Ride

A Kiss and Ride facility is a casual term for a place where commuters are driven and dropped off to board public transport.

## Linked Trips

Examples include trips between food and non-food retail developments and adjacent sites or an established town centre.

## LinSig

LinSig is a helpful tool to aid the traffic engineer in designing new traffic signal junctions as well as assessing the effects of modifying existing designs. It is a computer program used to predict Practical Reserve Capacity (PRC), delays, and queuing. It can be used to model individual junctions as well as small networks.

## LTP (Local Transport Plan)

An LTP is a plan produced by strategic transport authorities (county councils, unitary authorities, passenger transport authorities and local councils) that should provide advice to the local planning authority on highway and transport matters. An LTP should outline the current baseline with regard to transport, accessibility and pollution, before setting out objectives that should be reached, along with a programme for achieving these objectives. It is expected to be a forward-looking plan covering a number of years (typically five years), which is then presented to the Department for Transport (DfT). It can then be used as a 'material consideration' when a local planning authority or the Secretary of State determines a planning application.

## Mean Max Queue

The mean maximum queue measured in PCUs (See page 7) is an approximate average of the maximum queues likely to be encountered at a junction in a modelled network, and it will therefore be exceeded 50% of the time. The queue represents the average distance of the vehicle furthest from the stop line in each cycle.

## Microsimulation

Microsimulation software can provide a virtual model of transportation infrastructure in order to simulate the interactions of road traffic and other forms of transportation. The software treats each vehicle, bus, train, tram, cyclist, pedestrian etc. in the model as a unique entity with its own goals and behavioural characteristics; each possessing the ability to interact with other entities in the model and can be used to predict the impact of a development on an existing highway and test proposed improvements. PARAMICS and VISSIM are two software packages which are often used dependent upon the Highway Authority. The visual output from these packages can be used to great effect at exhibitions and presentations.

## MOVA (Microprocessor Optimised Vehicle Actuation)

Technology involving a series of loops cut into the road surface which feed vehicle data back to the automatic traffic signal controller. MOVA signal timings respond to traffic conditions and generate its own signal timings cycle-by-cycle, varying continuously with traffic conditions, both in the short term (hour to hour, day to day) and in the long term following annual trends and longer term traffic growth. This innovative method of signal control is found to be effective in reducing delays and reducing accident levels at a particular signalised junction.

## NATA (National Approach To Appraisal)

This system is used to assess the potential impacts of new road proposals on the environment, safety, economy, accessibility and integration.

## NRTF (National Road Traffic Forecasts)

National Road Traffic Forecasts (Great Britain) is a document produced by the Department of the Environment, Transport and the Regions which sets out the expected growth in the volume of motor traffic on roads in Great Britain until the year 2031. The document was published in 1997 but is still valid for obtaining national growth data.

## Parking Accumulation

A profile of measured or predicted total car park occupation, normally reported as the number of occupied parking spaces on an hourly basis.

## Pass-by Trips

Pass-by trips are made by traffic already using the adjacent roadway and enter the site as an intermediate stop on the way to/from another destination. The trip may not necessarily be “generated” by the land use under study, and thus, not a new trip.

## PCU (Passenger Car Unit)

PCU, or Passenger Car Unit, is a term used to represent the traffic flow on a road for various vehicle types. It is acknowledged that different types of vehicles will have different effects on traffic flow, and the PCU provides a consistent dimension. Individual vehicle classes are given different PCU values, with a car having the base PCU value of 1 and an HGV a PCU value of 2.3 (a HGV has the potential to cause an impact more than two times greater than a car).

## Pedestrian Crossings | Pelican Crossing

A pelican crossing is a type of pedestrian crossing featuring a standard set of traffic lights with a push button and two coloured lamps for pedestrians using the crossing. The “green man” shown to the pedestrians is on the opposite side of the road. The green man is followed by a ‘flashing green man/ flashing amber’ which gives some flexibility to the movement of pedestrians and traffic.

## Pedestrian Crossings | Puffin Crossing

A puffin crossing differs from a pelican crossing in that the lights controlling the pedestrians are on the near side of the road in such a position that makes the pedestrian face towards the closest lane of oncoming traffic. The system also utilises detectors which sense the presence of pedestrians waiting at the crossing, and as they cross the road, such that the lights will not stop traffic if the pedestrian has already crossed.

## Pedestrian Crossings | Pegasus Crossing

The pegasus is like a toucan crossing but for Horses. It is a light-controlled system where a bridleway crosses a main road. There are push-buttons 2m from the ground and the green man light is replaced by a green horse and rider. Pedestrians and cyclists can be combined with this type of crossing but are segregated.

## Pedestrian Crossings | Toucan Crossing

A toucan crossing is a combined pedestrian/cycle crossing that allows bicycles to be ridden across. The originator's attempt at humour was to suggest that since two-can cross together, the name Toucan was chosen. The pedestrian/cyclist signal lights may be on the near side of the crossing (like a puffin crossing), or on the opposite side of the road (like a pelican crossing).

## Pedestrian Crossings | Zebra Pedestrian Crossing

A zebra pedestrian crossing is characterised by alternating longitudinal black and white stripes (hence the term, named after the zebra) on the road, parallel to the flow of the traffic.

## PIA (Personal Injury Accident)

These are accidents which involve personal injury to a driver or other road users.

## PICADY

PICADY is a helpful tool to aid the traffic engineer in designing new major/minor priority junctions as well as assessing the effects of modifying existing designs. The model predicts capacities, queue lengths and delays.

## PPG13 (Planning Policy Guidance Note 13)

PPG13 describes the link between planning and transport policy. It promotes a reduction in the need to travel, especially by car.

## PTAL (Public Transport Accessibility Level)

Used in London as measure of how well a site or area can be accessed by public transport. It is used to determine parking ratios within a proposal and housing density.

## Queue Loop

A queue loop is a detector used to identify the presence of a queue of traffic on any approach to a traffic signal junction and calls a special series of timings to clear the queue.

## RFC (Radio of Flow Capacity)

An RFC is a measure used in traffic engineering to indicate how much demand a junction or road is experiencing compared to its total theoretical capacity. The design threshold value for capacity is usually 0.85. An RFC value in excess of 0.85 indicates that the entry arm is performing at a level beyond its ideal operational capacity. A value of 1.00 represents the junction being at capacity. *See also Degree of Saturation.*

## SCOOT (Split Cycle Offset Optimisation Technique)

A form of UTC (See below). Loops cut into each approach feed traffic information back to the central computer which carries out three calculations based on all the information it receives. It optimises the split which is the stage times for each junction, it optimises the cycle time for the whole network and it looks at the offset between the junctions. By the combination of relatively small changes to traffic signal timings SCOOT can respond to short term local peaks in traffic demand, as well as following trends over time and maintaining constant coordination of the signal network.

## Section 38

A common way of creating new highways is by an agreement between developers and the local Highway Authority under Section 38 of the Highways Act 1980. These agreements are most often made with housing developers who agree to build the roads to standards laid down by the Highway Authority, which then adopt and maintain the road.

## Section 106 Agreement (Formally Section 52)

Section 106 of the Town and Country Planning Act 1990 allows a local planning authority (LPA) to enter into a legally-binding agreement or planning obligation with a land developer over a related issue. The obligation is often termed as a 'Section 106 Agreement'.

Section 106 Agreements can be used to "enhance the quality of development and enable proposals to go ahead which might otherwise be refused".

## Section 116 - Highways Stopping Up Order (Highways Act)

The enables the magistrates' court to authorise the stopping up or diversion of a highway if it is deemed that the highway is either:

- (a) unnecessary
- (b) able to be diverted so as to make it nearer or more commodious to the public.

The key differences in comparison to the Section 247 (Planning Act) process are that the stopping up process under the Highways Act is generally more exposed to objection whereas the Section 116 process does not require proof that the highway closure is necessary to enable development.

## Section 247 - Highways Stopping Up Order (Planning Act)

This provides the Secretary of State (SoS) the power to stop up highways in accordance with a legally granted planning condition. The SoS carries out the procedure on behalf of the developer. Under Section 247 of the Town and Country Planning Act the SoS may by Order authorise the stopping up or diversion of any highway if he is satisfied that it is necessary to do so in order to enable development to be carried out:

- (a) in accordance with a planning permission
- (b) by Government Department

Once planning consent has been granted the developer may apply to the SoS to initiate the necessary processes to stop up or divert the affected highways.

The minimum time in which the process can be achieved is about five months, if there are any objections this time can be considerably more.

## Section 278 Agreement

Where a development requires works to be carried out on the existing adopted highway an Agreement will need to be completed between the developer and the highway authority under Section 278 of the Highways Act 1980. Examples of such works could be the construction of new access junction or improvement of an existing junction. Similarly, works such as traffic calming or improved facilities for pedestrians and cyclists could fall within a Section 278.

Under the Section 278 Agreement, the highway authority may provide the works at the developer's expense, or may allow the developer to provide the works directly, subject to an approval and inspection process.

## Transport Assessment

Where a new development is likely to have significant transport implications, a Transport Assessment (TA) should be prepared and submitted with a planning application for the development. It will then be used to determine whether the impact of the development on transport is acceptable. A TA tends to include local network modelling.

## Transport Statement

The purpose of this Transport Statement (TS) is to provide a high level assessment of the spatial objectives and policies within the emerging Core Strategy being prepared by the Council as part of its Local Development Framework (LDF). The TS will be used to assist in demonstrating the soundness of the Core Strategy. A TS tends to exclude network modelling.

## Transyt

A computer program used to predict degrees of saturation (DoS), queues and delays on networks of traffic signal junctions and priority junctions. Queues shown are Mean Max Queues and are not measured at a set time within the cycle time but are measured when the queue reaches its maximum point.

## Travel Plan (TP)

A TP accompanies a Transport Assessment and is aimed at reducing reliance on private car use over time. Targets should be set and the development monitored against these.

## TRICS (Trip Rate Information Computer System)

It is the only national trip generation and analysis database and contains trip generation and site information for over 2800 sites and numerous land uses.

## TRO (Traffic Regulation Order)

A Traffic Regulation Order (TRO) is the statutory legal document necessary to support any enforceable traffic or highway measure within the public highway. TROs are required for a range of restrictions including: waiting and loading, one-way streets, speed limits, weight and width restrictions, access and turning restrictions, road and footway closures, cycle and bus lanes and high-occupancy vehicle (HOV) lanes.

## UTC (Urban Traffic Control)

A generic term that covers the control of traffic signal junctions within an urban road network controlled by a central computer system via dedicated phone lines. There are two main types of UTC, Fixed Time and SCOOT (see above).

## Vehicle Actuated

Vehicle actuated signal control differs from fixed-timed signal control in that it requires "actuation" by a vehicle or pedestrian in order for certain traffic movements to be serviced. Actuation is achieved by vehicle detectors or pedestrian push buttons.

## Visibility Splay

A Visibility Splay is a diagram indicating the area adjacent to a road junction or access which should be free from obstruction to motorists and pedestrians. There are varying standards for visibility splays depending on the speed of traffic on the roads.

## VMS (Variable Message Signs)

Variable Message Signs, is an electronic traffic sign often used on roads to give information. Such signs warn of traffic congestion, accidents, incidents, roadwork zones, or speed limits on a specific highway or area. In urban areas VMS can be used to indicate available capacity within car parks around a town centre, for example.

## Walk With Traffic

"Walk with traffic" allows pedestrians to cross arms of a junction whilst vehicular traffic is still moving on other arms of the junction (with no conflict between these movements). Where possible, "walk with traffic" pedestrian movements are preferred as this usually increases junction capacity but may require addition road space to provide the pedestrian islands required.

## 85th Percentile Speed

This is the speed up to which 85% of the traffic is measured as travelling on a particular road in a particular direction using a speed gun or pneumatic tubes. It is a parameter used to consider the geometry of a road, like the safe level of forward visibility along a road and the appropriate visibility splays either side of a junction. It is accepted that 15% of the traffic will be travelling faster than this speed.