

FOCUS

A UITP POSITION PAPER

A Congestion-Free Bus Network

Congestion is a major obstacle to the economic, social and cultural development of our cities. Millions of hours are wasted every day in traffic jams and noise and pollution resulting from the continual growth in car traffic are seriously impairing the quality of urban life.

Congestion slows down surface public transport and makes it more irregular. It causes longer journeys and waiting times for users and increases operational expenditure by operators.

A study carried out in Brussels in 1999 evaluated the annual cost of traffic jams for operators at 17.5 million euros, or 18% of total service production costs.

The construction of new urban road infrastructures does not provide any sustainable solutions to the problem of congestion. It is incompatible with growing environmental protection demands and public budget constraints.

Rather than carry on developing expressway networks, the use of existing infrastructures needs to be optimised in terms of passenger transport capacity (and not vehicle capacity, as is still too often the case). In this respect, it is worth noting that buses (or tramways) use space far more efficiently than cars.

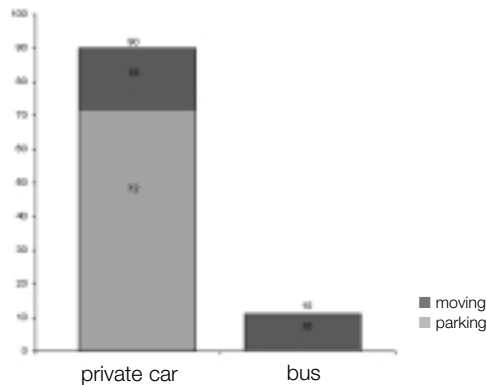
Moreover, surface public transport seldom needs to park whereas the space needed to park one car is equivalent to the space used for an employee's office.



The Stillorgan Quality Bus Corridor in Dublin has a frequency of one bus every minute during the critical peak periods.

This is an official position of UITP, the International Association of Public Transport. UITP has over 2000 members in 80 countries throughout the world and represents the interests of key players in this sector. Its membership includes transport authorities, operators, both private and public, in all modes of collective passenger transport, and the industry. UITP addresses the economic, technical, organisation and management aspects of passenger transport, as well as, the development of policy for mobility and public transport world-wide.

Space consumption, expressed in m² x hours, depending on transport mode (10 km return home-work journey)



From the brochure 'Better mobility in urban areas'

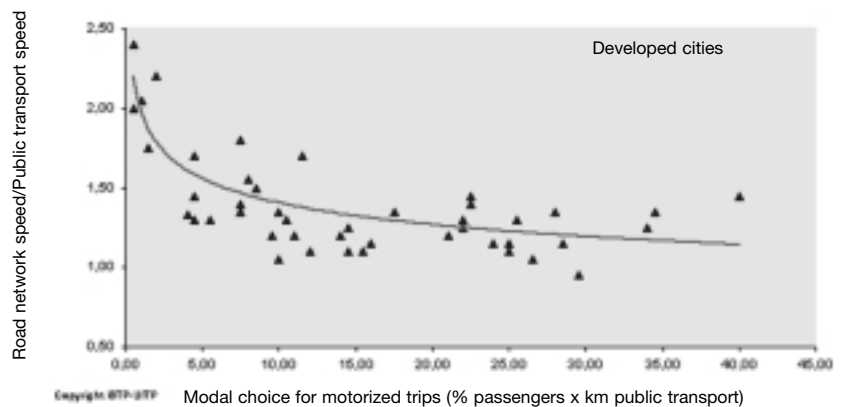
Public transport's appeal hinges on its speed and regularity. Analysis of the data compiled by UITP and the Murdoch University on 100 world cities shows that there is a direct link between the ratio of 'public transport average speed / automobile average speed' and PT's journey share. The most popular public transport networks are the ones that offer the best speed and regularity compared to the car.

The speed and regularity of train, metro and light rail systems mean they offer a real alternative to the car. On the other hand, the bus more often remains stuck in traffic jams. The purpose of this UITP focus paper is to

promote "congestion-free bus networks" as the main public transport system in cities without rail modes or to support rail networks in others.

A re-allocation of road space in favour of public transport is the necessary prerequisite of genuine bus prioritisation in order to protect buses from the potential hazards of general traffic. This is the condition for bus efficiency and appeal in the face of competition from the car. Opinion polls show that people support bus prioritisation measures even when these result in traffic and parking restrictions. They also show that the politicians often underestimate the will of their voters to give priority to public transport.

% of mechanised journeys by public transport x average speed on the road network / average commercial speed of public transport



Extract from the Millennium Cities Database

In Madrid, a bus/HOV lane is being used alternatively in the direction of the main traffic flow on a section motorway between Las Rozas and Puerta de Hierro, resulting in :

- a total traffic growth of 42% and a growth in bus traffic of 84%,
- an average time savings of 15 minutes in a bus journey,
- an increase in public transport market share, from 17 to 26%.



UITP recommendations

The bus is the only public transport mode in many of the world's cities and also plays a key-supporting role in cities with rail transport modes. In order to ensure that buses enjoy fluid traffic conditions, UITP recommends implementing "congestion-free bus networks" that cover entire metropolitan areas.

The "congestion-free bus network" includes the main trunk roads and expressways served by buses, in particular radial routes penetrating into the centre. The aim is to optimise the capacity of these routes in terms of passengers carried and improve PT speed and regularity by creating "bus-only" lanes. These reserved lanes may also be used by emergency vehicles and, where necessary, by other vehicles such as taxis, bicycles and cars carrying at least three passengers.

Implementation of this "congestion-free bus network" is a major component in overall policy on mobility and urban planning. It is in keeping with a general framework that encompasses action on traffic, parking in central areas, Park + Ride and the regeneration of urban public spaces. It therefore requires close collaboration between the public authorities, police services and public transport operators. It should be conducted progressively, starting with the most congested routes that lack any dedicated rail links and with consultation of the residents, in particular the shopkeepers.

The aim of this congestion-free bus network is not only a more competitive public transport system but also the improvement of the urban spaces and the quality of life. Its implementation calls therefore for investment by the public authorities.

The subject of this Focus Paper is not to define the technical characteristics on how to lay-out a congestion free bus lane or the priority mechanisms for public transport at crossroads, but to set out the basic principles for the implementation of a congestion-free bus network.

Bus-only lanes along motorways

Making a traffic lane "bus-only" on a motorway is recommended when the motorway is saturated and if transport capacity offered by buses along this lane is greater than that of cars, according to the occupation levels of these two modes. If bus service intervals are insufficient, it is recommended that other vehicles be allowed along these lanes, in particular cars occupied by at least three people (HOV). Access to "congestion-free lanes" might also be extended to private vehicles upon payment of a toll. In that case, the profits made, at least part of them, should be used to finance this congestion-free bus network.

In most cases, the reserved lane is a new lane (for example, along either the motorway's central reservation or the hard shoulder, as in the Netherlands). Nevertheless, the possibility should be retained of removing an existing lane as soon as optimal use of this lane would enable the motorway's total capacity to be increased and journey times reduced for users as a whole.

In Madrid, London, Belfast, the Netherlands, Sweden, Australia (among others in Brisbane) and the United States, examples of bus/HOV lanes on motorways have produced very encouraging results. An increase has been recorded in peak-time passenger transport capacity, journey times have been cut for all motorway users, particularly those using public transport, PT market share has grown and average car occupancy rates have risen.

UITP recommendations (continued)

“Quality bus corridors” on major urban routes

UITP recommends moving on from the stage of bus-only lanes on specific (and often discontinuous) sections of the network to a new stage of “congestion-free networks” along the main routes served by buses in the metropolitan area. According to the circumstances, taxis and cyclists could also use these public transport corridors. Where the implementation of congestion free bus lanes is impossible due to the narrowness of the streets, the car traffic should be forbidden or at least strictly limited to the residents and the delivery vehicles. The aim is to offer passengers an efficient bus network from every service quality angle:

- high speed and regularity, courtesy of reserved lanes along the entire lengths of routes and through prioritisation measures at intersections (bus advance areas that allow buses to pass through intersections without hindrance from other vehicles, controls over traffic signals, etc.);
- simplified routes and systematic return routes along the same axis, if necessary by using lanes that run against the flow of general traffic;
- protection of bus-only lanes using barriers that motorists cannot drive over, or effective enforcement of motorist compliance with these reserved lanes;
- high service frequency, e.g. every three minutes at peak times and every six minutes at off-peak times;
- easy ticketing system which enables quick getting in the bus;
- comfortable vehicles, with an easy and quick access for disabled persons and persons with children or luggage;
- operational aid system with, for example, bus tracking using GPS;
- safe, quick and comfortable pedestrian ways to access the stops;
- bus shelters that are covered, well lit, comfortable and provide real-time passenger information.

Examples of bus networks that have been restructured according to the principle of reserving lanes for “quality buses” exist in Dublin, Stockholm, Jönköping, Ottawa and Nagoya. These have produced remarkable results in terms of improved speed and regularity and increased PT traffic.

In Dublin, 16 radial routes entering the centre have been revamped as “Quality Bus Corridors” resulting in:

- a reduction in the duration of public transport journeys of between 30 and 50%,
- an increase in public transport ridership of between 20 and 100%, depending on the corridor,
- 60% of new users to public transport used to make their journeys by car.

When the construction of a metro or light rail system would be too costly in relation to available funding, bus-only lanes with stops that can accommodate several buses at once are able to transport very high traffic flows (greater than 10,000 passengers per hour and direction), as demonstrated, for example, in Sao Paulo.

This position paper has been prepared by the General Commission on Transport and Urban Life in cooperation with the Committee of Organising Authorities, and approved by the UITP Policy Board.