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Busways and Reversible Bus Lanes

Contributors: Paulo Rui Anciães

Edited by: Mark Garrett

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Busways (also known as “bus lanes”) are road lanes for the exclusive use of buses. In some cases or at certain hours of the day, other vehicles may also be allowed to use the lanes. Busways are increasingly relevant in transportation policy as an instrument to reduce car use and tackle problems such as congestion, road safety, pollution, and energy consumption. Bus lanes are also implemented as elements of high-performance public transportation networks such as bus rapid transit (BRT) systems.

Despite the advantages and the increased relevance of busways in urban transportation policy, the implementation and operation of the schemes are sometimes restricted by a lack of social and political support and by problems in enforcement.

Busways were first used in Germany in the 1960s, with Hamburg being the first example. Cities throughout the world have since implemented the system in parts of their bus network. In large metropolitan areas such as London, Paris, and Beijing, the network of busways is very extensive (more than 200 kilometers long) and fulfills a crucial role in the mobility of commuters. Busway schemes have generally met with success and are increasingly considered as an essential element of programs to mitigate road traffic and improve the performance of public transportation systems.

While the system is designed for the exclusive use of buses, other vehicle categories, such as motorcycles, bicycles, delivery vehicles, emergency vehicles, taxis, and other means of public transportation are sometimes allowed to use the lanes. Buses may also share the lanes with cars traveling with more than one or two passengers in schemes known as high occupancy vehicle (HOV) lanes or high occupancy toll (HOT) lanes. In some cases, busways are open to all road traffic during off-peak periods. Some lanes may also operate in both directions depending on the time of day and are known as reversible lanes. These regulations ensure a more efficient use of road capacity in the cases when demand is highly variable throughout the day, such as in commuting corridors linking residential areas with major centers of employment.

The implementation of busways may be complemented with other preferential measures for buses in road traffic, such as the assignment of signal priority, queue bypass or queue jump, and turn restriction exemptions. These measures are applied to increase the connectivity of the lanes for the exclusive use of buses and to reduce delays in bus services by eliminating detours and stops.

Objectives

The main objective of busways is to increase the average operating speeds for buses in areas with high congestion levels. Indeed, the assessment of the effects of the scheme in cities throughout the world has consistently shown substantial improvement in the speeds of bus services operating along the busway corridors. The use of busways is especially attractive to express services, although they also bring advantages to services stopping at every bus stop, especially when structures such as curb extensions and boarding islands are included in the design of the system.

However, the improvements in bus lanes may come at the expense of speeds in other parts of the bus network, especially when the lanes are implemented through the reallocation of existing road space. The reduction of capacity for general traffic reduces its average speeds and may force some car drivers to use alternative routes. If capacity along these routes

remains unchanged, congestion will increase, affecting both car and bus traffic.

The reduction of congestion levels in bus lanes brings additional advantages apart from the effects on speed. Users benefit from the increased reliability of the services, due to the reduction of delays and lower variability in waiting times at bus stops. The operators of the system also gain financial benefits as congestion is usually related to higher fuel consumption per distance traveled due to vehicle idling time. If the improvement in the performance of the bus system attracts additional passengers, revenues will also increase.

Advantages

A series of indirect advantages have also been identified. By making bus travel more attractive, the system promotes modal shift from private vehicles, contributing to a general reduction in road traffic levels, congestion, and emission of local and global pollutants. The existence of bus lanes also contributes to a reduction in the number of fatalities in road accidents, as they act as a buffer reducing collisions between vehicles and roadside objects. In addition, the separation of bus and car traffic enhances the safety and comfort of passengers waiting for or boarding buses, as it increases the visibility of buses and increases the distance between passengers and cars.

Disadvantages

Nevertheless, busways can also have a negative impact on pedestrian safety and local environmental conditions when the implementation of the scheme involves the construction of additional lanes. The widening of the road may be achieved by reducing pavement space. This increases the proximity of pedestrians to road traffic, with effects on pedestrian accident risk and exposure to air pollution and noise. The increase in the number of lanes also affects the safety of pedestrians crossing the road. The widening of the road may also come at the expense of existing open space surrounding the road, with indirect effects on urban environmental conditions.

A tour bus followed by a sport utility vehicle in a single-direction bus lane on Broadway in Lower Manhattan. The city of Hamburg, Germany, pioneered bus lanes in the 1960s and has since been followed by large cities around the world.



Bus Rapid Transit and Other Strategies

Busways are an essential component of policies to improve the performance of urban public transit networks, such as the implementation of bus rapid transit systems. These systems share some of the characteristics of light rail or underground systems, such as a limited number of stops, frequent and regular service, and the use of exclusive corridors. The success of BRT systems in Latin American cities such as Curitiba (Brazil) and Bogotá (Colombia) has encouraged the adoption of similar systems in other cities of the world, with a large number of systems currently being developed in China and India.

Busways are also increasingly planned as a part of broad strategies for the promotion of

alternatives to the use of private vehicles. As such, some busways are designed or redesigned for the shared use of buses and bicycles. These projects can increase the efficiency in the allocation of road capacity to different means of transport. They can also decrease accident risk for cyclists by separating them from general traffic. However, the achievement of these objectives is dependent on careful design and control of several elements of the road and of the bus system, such as lane width, bus speeds, locations of bus stops, clarity of traffic signs, and design of intersections.

Reception

Despite the obvious advantages of the scheme, transport authorities do not always gather the social and political support needed for the expansion of the busway network. Car users may object to a perceived preferential treatment of users of public transportation. This is especially prevalent in cases in which bus lanes are underutilized. In addition, when busways are implemented through the reassignment of existing road space, congestion may increase considerably in the other lanes, leading to losses of time and higher fuel consumption for car users.

Bus lanes can also reduce space available for car parking and space used for loading and unloading freight. There are also conflicts over which vehicles other than buses are allowed to use the lanes. This is often the case when access to taxis is granted to a select number of taxi firms, leading to complaints by the other firms on the grounds of distorted competition.

The system can also meet with problems at the operational level. Given the extension of most busway networks, the enforcement of restrictions on the use of the lanes is difficult and costly. Failures in enforcement may lead to reduced speeds when a large number of private vehicles use the busways, and to bottlenecks when parked cars obstruct the lanes. The problem is sometimes addressed by using barriers to separate bus lanes from other lanes. The increased use of closed circuit television can also improve enforcement by dissuading car drivers from using the busways.

- buses
- roads
- pedestrians
- public transportation
- vehicles
- world cities
- taxis

Paulo RuiAnciães, *Independent Scholar*

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See Also:

- [Bikeways/Bike Lanes, Road Design Issues of](#)
- [Bus Rapid Transit](#)
- [Bus Rapid Transit, Design and Engineering of](#)
- [Bus Systems, Interurban](#)
- [Bus Systems, Local and Express](#)
- [High Occupancy Vehicle Lanes](#)
- [Traffic Control Devices](#)

Further Readings

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