

TRANSPORT FOR LONDON

Guidelines for Planning Bus Services

August 2012

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GUIDELINES FOR PLANNING BUS SERVICES

CONTEXT

1. The London bus service supports delivery of the Mayor's Transport Strategy. The Mayor's vision is that "London's transport system should excel among those of global cities, providing access to opportunities for all its people and enterprises, achieving the highest environmental standards and leading the world in its approach to tackling urban transport challenges of the 21st century."
2. Six goals are set out for the achievement of this vision:
 - Supporting economic development and population growth.
 - Enhancing the quality of life for all Londoners.
 - Improving the safety and security of all Londoners.
 - Improving transport opportunities for all Londoners.
 - Reducing transport's contribution to climate change, and improving its resilience.
 - Supporting delivery of the London 2012 Olympic and Paralympic Games and its legacy.
3. The bus service is central to each of these goals. The objective of the bus service planning process is to deliver the Mayor's policies for achieving these goals, in conjunction with other initiatives and modes of transport. To do this, bus network development must be a continuous process, responsive to London's changing transport needs and led by the priorities of passengers and potential passengers and the actual usage made of the network. Regular market research and liaison with stakeholders is vital to maintain a current understanding of these priorities.
4. Passenger satisfaction is linked to a variety of requirements. Those related to travel time are consistently found to be the most significant. Travel time includes access to and from the network, waiting and travelling.
5. To reflect these requirements, bus service planning needs to aim for a network of services which are:
 - Frequent: with adequate capacity for the peaks;
 - Reliable: providing even service intervals when frequencies are high and running to time when they are low.
 - Simple: easy for passengers to understand and remember, and well-integrated with other public transport;
 - Comprehensive: providing service to all areas and recognising the needs of local people from all sections of the community.

6. Additionally, to ensure that funds are used in the best possible way the network must also be:
 - Cost-effective: with options tested to ensure that they offer the best value for money within the available budget.
7. These ideas are encapsulated within Proposal 23 of the Mayor's Transport Strategy. The network is kept under regular review to ensure it :

"... caters for growth in population and employment, while maintaining ease of use, attractive frequencies and adequate capacity, reliable services, good coverage and good interchange with other modes. All proposals for change will be appraised to ensure that they deliver good value for money and that the funds available are being invested in optimum service improvements."
8. The Guidelines which follow are used in preparing options for change. They do not individually or collectively create a justification for any particular scheme. Each proposal for changing the network must be worthwhile in economic terms and be practical in terms of the road network and operational infrastructure. All proposals for significant change to the bus network will involve consultation with Local Authorities and other statutory consultees.

THE FREQUENT NETWORK

Objectives

9. Where justified by demand, services should be designed so that passengers can use the network without the need to consult a timetable before travelling, with the ability to “turn-up-and-go”.
10. Service frequency should be set to provide adequate capacity at the busiest times and places.

Benefits

11. A frequent network with sufficient capacity delivers the principal passenger priority of minimising travel time. It is central to the role of public transport in ensuring people can travel when they need to, to their employment, health, education and social commitments. It supports business in delivering a flexible workforce and expands opportunity for the community.

Guidelines

12. If buses run reliably every twelve minutes (or more frequently) then most passengers will treat the service as “turn-up-and-go”. Below this frequency, most will wish to consult a timetable before travelling. Where justified by demand, services should be designed to run every twelve minutes or better in the daytime.
13. Capacity should generally be set so that most passengers can normally board the first bus to arrive where the scheduled interval between buses is every ten minutes or more. Where the interval is less than this, passengers should normally be able to board within ten minutes of arriving at their stop.
14. When considering total capacity along a corridor where services run in parallel, capacity on each service to its unique destinations must also be considered.
15. The network is planned so that high levels of reliability can be achieved. However there will be some variation from scheduled headway on a day to day basis, particularly during peak times. Unreliability reduces the actual capacity provided at the busiest time.
16. For example, a route with a scheduled headway of 10 minutes, if passengers experience an excess waiting time of 1 minute, then, on average, the capacity actually provided in an hour is approximately 15% lower than if the service ran exactly to schedule. Additionally passenger arrival rates at stops will, in practice, not be constant, leading to further variations in loadings per bus. Allowance for effects of this kind must be made when planning the required level of service.

THE RELIABLE NETWORK

Objectives

17. Bus services should be planned to give consistent waiting and overall journey times.

Benefits

18. Unreliable, unpredictable public transport can be the source of significant additional cost to both business and public services. If people are unable to predict their travel times and arrive at, for example, work or to health appointments on time, then those businesses and services will incur additional costs of this disruption.

Guidelines

19. The reliability of waiting time is measured on a continuous basis for each service. Minimum performance standards are set for each route. These take account of operating conditions and other relevant factors. The scheduled time allocated to run along each route must be based on an up-to-date knowledge of traffic conditions and passenger demand at different times of day and week.
20. For each journey, the delays encountered by buses and hence their actual running time can vary considerably, even between one journey and the next. The effects of any delays can be reduced by allocating recovery time at terminals. This prevents delay accumulating and allows the operators to restore even intervals between buses.
21. The longer a route the greater the potential for variable delays on each run. Where longer routes are needed to meet particular patterns of demand, then additional recovery time at the terminals should be considered, provided the space is available.
22. When services are disrupted by road works, special schedules or temporary bus priority should be considered.

THE SIMPLE NETWORK

Objective

23. The network should be designed so that the service pattern on each route is as simple as possible.

Benefits

24. The demand for bus travel is diverse and the road network is complex which means that the overall London bus network will also need to be relatively complex. However, people are deterred from using buses by complexity. Simple service patterns mitigate this effect.

Guidelines

25. Services should generally run between the same terminals throughout the week, including the evenings and Sundays.
26. Service routings should be as straightforward as possible, while still adequately serving the places passengers need to travel to and from in a cost-effective way.
27. If a “turn-up-and-go” frequency cannot be justified (see *The Frequent Network*) then “clockface” timetables should be provided - buses which depart stops at the same minutes past each hour, in a regular pattern.
28. Where a number of services run together along sections of road, then wherever possible their timetables should be co-ordinated.
29. If there is not 24-hour coverage then the last bus should run at the same time on all days of the week. First buses should run at the same time, Mondays to Saturdays. A later start on Sundays may be acceptable.
30. Last buses should depart major centres no earlier than midnight.
31. The times of first and last trains at rail interchanges must be taken into account in setting the times of early and late journeys.
32. For special events generating extra demand, additional or special services will be considered, in line with expected demand and efficient use of available funds.

THE COMPREHENSIVE NETWORK

Objective

33. A comprehensive network should be provided ensuring that people have access to their local amenities such as shops, hospitals, schools and transport interchanges.

Benefits

34. A comprehensive network reduces access time to the network and to passengers' final destinations.

Guidelines

35. In residential areas, it is desirable for the bus network to run within about five minutes walk of homes, if this is cost-effective and if roads are suitable. This is about 400 metres at the average walking speed.
36. The 400 metre guideline will be used alongside other indicators of accessibility to the network. These may for example be demographic, such as low car ownership, or physical, such as steep hills, parkland or severance due to main roads.
37. In town centres, passengers should be taken close to the places they want to reach - shopping centres, rail stations, etc. At the same time, however, complicated or indirect service routeings should be avoided.
38. Demand justifies services being provided throughout the day and evening. Some services will justify 24-hour coverage.
39. Effective interchange is essential to achieving a comprehensive network, as there will not be a direct bus link for every journey. Interchange opportunities will be taken into account in service design. In particular, good interchange facilities in town centres are important given that town centres form the hubs of the bus network.

THE COST-EFFECTIVE NETWORK

Objective

40. The aim is to provide the best value to passengers from the resources which fares revenue and subsidy can purchase. This will be done by appropriate resource allocation.
41. Demand for travel changes over time, for example as houses are built, shopping patterns change, or people change their mode of travel. There is a constant check that resources are being allocated to the service pattern that bests reflect overall travel needs and the amount of money available at any given time. This maintains the sustainability of the network.
42. Proposed changes are analysed to estimate the benefits (or disbenefits) to passengers in terms of waiting and travel times. This will take into account knowledge of the way demand varies, in time and in location. These benefits are then set against the cost of provision, in a social benefit and cost framework. The aim is to secure the best overall value.

Criteria

43. Proposals that increase benefits for passengers and reduce costs will be recommended. Those that reduce benefits for passengers and increase costs will not. Costs will be calculated net of changes in fares income.
44. Some proposals increase benefits but also increase net costs. They will be tested by calculating the ratio of benefits to net costs. A threshold is set for this ratio – proposals which do not attain the threshold would not normally be taken any further. Those which reach the threshold can be considered for introduction if funding is available.
45. Other proposals will reduce benefit, but also produce a net saving for spending elsewhere. These will be tested by comparing the ratio of disbenefits to net savings with the current threshold.
46. The current threshold for spending proposals is 2.0 to 1. This means that each extra £1 of net spending should produce benefits worth at least £2. For example, a scheme to increase frequency on a route may cost £1m per year. The threshold might be reached if there were: extra travel generating £400,000 of revenue and benefits to passengers worth £1.2m. The net cost of this scheme is £600,000 per year and the benefit to net cost ratio is 2.0 to 1.

FURTHER INFORMATION

47. Further information is available in the documents listed below.

- Mayor's Transport Strategy
<http://www.london.gov.uk/publication/mayors-transport-strategy>
- Consultations on proposals to change bus services
<http://www.tfl.gov.uk/corporate/projectsandschemes/13922.aspx>
- London Travel Report
<http://www.tfl.gov.uk/corporate/about-tfl/publications/1482.aspx>