

RAILS OR RADIALS: BUS RAPID TRANSIT OR LIGHT RAIL TRANSIT?

Mass transit is generally considered one element of the necessary response to urban transportation demand. Most major urban areas in the United States have some form of traditional bus service. These systems generally use 40' buses that operate on regular roadways and provide local service, stopping often to pick up and drop off passengers. Some systems also use 60' articulated buses, and operate express service, with fewer stops and faster service. A few metropolitan regions have constructed more significant mass transit systems, including subways, street cars, and light rail transit (LRT) systems. Another option that has recently become popular is bus rapid transit (BRT). BRT vehicles can be up to 85' in length, are able to travel on various types of roadways and can provide a fast transit service. This case study will examine the issues involved in choosing a BRT or LRT system.

Mode Choice: Bus Rapid Transit or Light Rail Transit

Why is this case important to land use and transportation?

The question of transit mode comparison is important because of the implications for transit investment, mode choice, and level of service provided by bus rapid transit (BRT) or light rail transit (LRT). Bus rapid transit is a relatively new form of transit. The purpose of BRT is to mimic the benefits of LRT but also reduce the initial capital costs. The case is important not to determine that BRT has more benefits than LRT but to answer the question – “If one mode can offer comparable levels of service at lower capital costs, then which one should be selected.” Many regions debate this question as they select what type of mode should be used for their transit corridors. If BRT is more cost effective than LRT and offers a similar level of service, then it should be selected.

BRT has the potential to be a “gateway” mode for mass transit, as well as provide a reliable service. Attracting riders to a mode requires similar levels of service based on various amenities for efficient systems. Dedicated right-of-ways provide corridor advantages and uninhibited travel. BRT stations are typically more substantial than ordinary bus-stops, and create a protected structure and reliable location for passengers to board and alight the BRT vehicle. These stations can incorporate intelligent transportation systems (ITS), which provide the riders with information. This information can help them adjust their route plans accordingly. BRT and LRT both use fixed stations with ITS and dedicated right-of-ways but BRT uses more flexible vehicles.

Public perception of a mode is due to experience. Improved levels of service and meeting needs of transportation users can alter perceptions. If a service can be expanded to attract more riders, then the cost per rider will be reduced. The infrastructure in turn is more widely used and attracts investment near well traveled nodes. Proponents of BRT suggest strong branding be used when the system is introduced. The goal of branding is to counteract some of the negative public perceptions of buses and bus service.

The cost differential associated with selecting a transit mode is important because the capital costs will need to be recovered in fares, taxes, and or federal funding sources. Selecting a mode with lower capital cost but may provide opportunities to expand levels of service.

Considering the implications of both the modal choices, the studies have shown that BRT has fared well compared to LRT. These performance standards are based on capital costs, operating costs, system performance, and other factors. It was found that BRT had an advantage over LRT in terms of operating costs, operating speed and ridership. Furthermore, BRT has an advantage over LRT because it is more flexible as LRT lines are fixed. LRT lines are insensitive to land use and employment changes, while BRT service can easily be rerouted and shifted over time to correspond with the changing transportation needs of a city.

On the other hand, BRT may be viewed too much like traditional buses which are slow, noisy, polluting and visually disturbing by the community at large. While, LRT may be perceived as a “hallmark of a world-class” city which prompts economic development thus improves the community’s image. However, we believe that a community’s perception can be changed. Education amongst the general mass is a key to make them realize that BRT is not simply a bus service but it incorporates a variety of new methods and technologies with improved designs and performance.

Finally, we believe that if BRT offers the same level of services as LRT, then it should be a more viable modal choice for transportation in urban areas.

Instructions:

Read pages 1-10 in the GAO document.

Read Levinson and Ben-Akiva in their entirety.

Explore the NBRT website for more information.

Bibliography

GAO-01-984 *Mass Transit: Bus Rapid Transit Shows Promise*. Report to Congressional Requesters, The United States General Accounting Office, 2001.

Herbert S. Levinson, Samuel Zimmerman, Jennifer Clinger, James Gast. "Bus Rapid Transit: Synthesis of Case Studies." *Transportation Research Record*, 2003: 1-11.

Moshe Ben-Akiva, Takayuki Morikawa. "Comparing ridership attraction of rail and bus." *Transport Policy*, 2002: 107-116.

National Bus Rapid Transit Institute, www.ibrt.com