

## Bus Rapid Transit in the People's Republic of China

By Karl Fjellstrom and Duan Xiaomei

- **Sustainable transport policy limits, rather than promotes the use of private vehicles**
- **As a mass transit option, Bus Rapid Transit systems cost ten times less and are quicker to construct than metro systems**

Asia is attempting to change the focus of transport policy in the 21<sup>st</sup> century. While most developed countries have successfully restricted the use of cars through fiscal or physical measures, similar approaches are only beginning to take root in Asia.

The People's Republic of China, like much of Asia, embraced the automobile. But, with much higher population density in cities, it has done so at a higher social cost than in the West. The country is now facing transport-related constraints to future development including: transit system capacity that does not meet demand; outdated parking policies; lack of attention to bicycles and pedestrians; and generally poor urban design. Prioritizing urban public transport is recognized as one solution, of which BRT systems are an option.

BRT systems opened in the 1990s in Kunming. These were soon adopted in several other Chinese cities. However, most if not all existing BRT systems in the PRC:

- evidence poor station design (e.g., stations are located near intersections, which often results in vehicles blocking the intersections and pedestrian crossings; some have no segregated access; or stations are too small);
- have limited capacity and potential for expansion (making existing stations either difficult or impossible to expand or upgrade to full BRT systems);
- do not provide overall time saving benefits for bus passengers and road users in the corridor (e.g., there are long queues at ticket windows, heavy crush loading during peak periods, or BRT corridors are open to mixed traffic and become congested during peak periods);
- tend to design all stations at the same size, regardless of demand (resulting in overcrowding at some stations even with current low demands); and
- do not draw on the inherent flexibility of buses to serve urban areas.

The Guangzhou BRT, however, promises to be the first high-capacity BRT system in the PRC, and the second in the world. Targeted for operation in late 2009, it is expected to exceed the passenger flows of other BRT systems in Asia; complement and



supplement existing metro systems to provide citywide mass transit coverage; deliver overall time savings worth 36 million passenger-hours each year; and reduce bus fleet needs and energy consumption.

### Important information on BRT Systems

BRT systems are cost effective. A metro system costs about \$40 million–220 million per kilometer while a BRT system costs approximately ten times less at around \$1 million–10 million per kilometer. BRT systems are also quicker to construct: from planning to completion, a BRT system takes 18–24 months to construct (while a metro system takes 3–30 years).

BRT systems are more efficient than conventional bus services. BRT systems deliver high speed and high capacity transport services through shorter boarding time and faster alighting of passengers; off-board fare collection and fare verification; multiple stopping bays at stations; express and limited stop services; the use of flexible buses with multiple wide doorways; platform level boarding; and optimum station spacing.

BRT systems cannot be designed and implemented in isolation. BRT systems must be carefully designed from the beginning. Important considerations include: integrating BRT systems with all transport modes to create a city-wide mass transit network, e.g., combining metro and BRT systems; connecting bikes to transit and other key destinations (e.g., automated underground bicycle parking and sharing); incorporating BRT systems into the planning stage for new development areas and new roads; and providing safe pedestrian facilities.

#### For further information

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